Success or failure of digital library services – a decade of Danish experiences

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Abstract:

The ongoing shift of paradigm from analogue to digital library services has changed the concepts of information services and reference work in less than two decades. The paper presents a review of three categories of services developed and presented in Denmark from the mid nineties till today:

1) *services that did not survive in spite of a vast remount of resources invested in them.*
2) *services that managed to develop*
3) *new services that are user inclusive, responsive and interactive.*

The services will be reviewed in relation to their innovative impact and actual use and their potential to meet various user needs. Focus will be on lessons learned that have a perspective for future services.

1. The change of reference- and information services in the last decade.

Seen from a historical point of view, the change of reference and information services in libraries has occurred incredibly fast. What in the late twentieth century used to be the flagship in many libraries- public as well as academic: the reference collection, where you could – with help from a highly qualified librarian- find answers and the relevant references to even very complicated questions, has today more or less disappeared or been reduced to a tiny collection of the once most used and beloved

encyclopaedias and handbooks. Or the tiny reference collection remains as a tombstone over a bygone era. Probably, these tiny and nearly symbolic reference collections in libraries are the result of a struggle between 'old school' librarians that invested their professional life in building, maintaining and using these collections on one hand and a new generation strongly focused on developing new roles for librarians on the web in a market where hardly anybody would be struck by the idea to go to the library and look something up in an encyclopaedia.

The use of reference collections is – at least in our country, Denmark, generally extremely low, but the idea that a library whose main service is still based on printed media should not present these works may be unbearable for those, who created the collection. However, when it comes to the majority of needs that could be matched by traditional reference and information services, we must face the fact that today nearly all needs are much faster and easier satisfied on the web. The exponential growth of Google, Wikipedia and other services like YouTube, Facebook and Twitter has challenged the library and in particular reference services on the core of the library identity. The break through of the internet as *the* reference and information tool has been so convincing – at least in Northern Europe, and a huge number of other countries and in coming years everywhere, that strategic concerns in the library sector on how to address this change have been based on an enormous uncertainty, and sometimes libraries were chasing the latest fashion on the web, because they felt they had something to offer and could demonstrate competencies and offer new services to the users. Second Life[1] was an example on that, and who remembers Second Life today?

Because of the swift changes, we did not have the time (or did not bother in our search for new roles?) to evaluate the experiments we did. We didn't look back on our failures and – a few- successes, but headed on to keep pace with the latest competing service on the web or tried to implement a new idea on how we could actually serve our customers better on the web. The failures were quite clear. Successes have many fathers, failures hardly any, is a very old experience.

This paper deals with learning lessons from the many services Danish libraries launched on the web in the first decade of the twenty-first century. We never did a coherent and comprehensive evaluation, we developed strategies along with actions, and we learned lessons all the time and tried to improve. We had an ongoing discussion on the potential in the web, and we spent substantial resources in developing new services. But it is time to sum up some important learning particularly from the failures.

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[1] http://secondlife.com/

2. Library development in Denmark

Denmark has been a frontrunner in relation to library development. We had a new library legislation in 2000 based on the idea that the industrial society would transform into an information society, and that libraries had to change along with that fundamental transformation. We realised early that the internet would be the backbone in the information supply. The 2000 legislation made it mandatory for public libraries to give access to information no matter how it was stored- and of course the major implication in this was not that libraries had to offer music-cd's, DVD´s, computer games and other new media, but had to base their services on the fact that the internet was the backbone in the infrastructure of the information society and that digital services had to be developed. Seen in the wisdom of hindsight some of our efforts were good and necessary while others failed, mainly because they were the result of traditional thinking belonging in an analogue world. But what was difficult to see in the immediate context is easy to recognize ten years later.

This paper will discuss examples in relation to criteria that are defined today, because the truth is that our strategic thinking for years was so focussed on innovation that we did not bother much about systematically reviewing the impact of different factors, and we did only on a very basic level set up empirically founded success criteria. This may be the most fundamental lesson learned: Running experimental projects needs a priori established success criteria and a structured thinking in factors potentially influencing success.

3. Phases in innovation work

The Danish model for development and innovation of library services is basically organised as a cooperation between the libraries and the Agency for Libraries and Media, which is responsible for a number of national services and administers a pool for development in public libraries[2]. Each year we define a number of focal points, where we invite libraries to bring up project applications.

From 1997, when we started thinking about hybrid libraries, and up till today, where our strategy is to create a national digital library combined with a new concept for local library spaces, we can identify some very typical steps. The concept of the hybrid library was the strategic foundation of our efforts, and grants were given for basic computerization of libraries and for developing library homepages incorporating a growing number of services. An early project that has since been fundamental in

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[2] http://www.bibliotekogmedier.dk/tilskud/tilskud-og-puljer-biblioteker/udviklingspuljen/

the national services of libraries was the online ´ask a librarian-service'[3] (Biblioteksvagten.dk).

Along with the passing of the Act on library services in 2000 public access to the national union catalogue web was given. Until then, it had been an exclusive professional tool not accessible for the public (to a growing concern of the public who knew about this tool!), and the library.dk[4] (bibliotek.dk) has since then been under constant development, starting as a traditional catalogue and transforming into a portal integrating most of the launched digital services that had proved itself effective.

After a few years, the librarians saw a new task in creating subject portals. Our initial idea was to compile the best web-resources on a subject in a portal, and great efforts and many resources were used in these some ten projects, which mainly were run by academic libraries. The thinking behind these projects today seems to be a kind of classical collection thinking and many of the portals were containing not only links to selected sites but also contained material digitised for the portal. For instance a music portal digitized some Danish core music periodicals[5], while the art portal[6] negotiated licenses for some of the most relevant international reference works on art. The ambitions were high and lots of original and newly created content was collected and presented in these portals. But there was never a survey trying to identify the needs and preferences of the users, and most of these spectacular monuments over librarians proud ambitions withered away after a couple of years- even if some of them did a proper marketing job to tell the world about the fabulous offer. The longest living link-collection was compiled by a huge number of public libraries in cooperation on a site called The Libraries Web Guide[7] (Bibliotekernes Netguide). The idea was to evaluate and select the best links on all subjects, so that the users could be directed to the two or three most relevant sites. This service had a core group of users and it was maintained for 7 years, but it has stopped now, mainly because the classical idea of control and selection simply was impossible to run in a cyberspace growing with explosive speed. Another early idea was the BibHit-project that tried to create a database of internet resources by cataloguing resources in an uncontrolled manner using the Dublin Core Metadata Element Set instead of the more thorough Danish cataloguing rules. Hundreds of librarians spent part of their working time on this project and the Agency was met with angry protests as we phased out the funding. Nevertheless, BibHit did not manage to attract users, because it placed itself in a position between traditional catalogues and search engines that didn't outperform any of them.

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[3] http://www.biblioteksvagten.dk/
[4] http://bibliotek.dk/ or http://bibliotek.dk/?lingo=eng
[5] http://www.dvm.nu/
[6] http://www.arkade.dk/
[7] http://www.bng.dk

In 2005, it became clear to the Agency for Libraries and Media that some of our investments in new web services had failed, and we recognized that the strategic framework for the work we were carrying out was insufficient. Actually, there had been a high random factor in the development work. The Agency was leading in setting up prioritized fields for development- and libraries that had ideas for projects and power to invest in implementing them applied for support and often got it. Recognizing that some of our failures were actually based on insufficient ideas on how the web was developing and that some of the failed projects could be characterized as traditional collection management transferred to web-resources, we started defining criteria for a more holistic library development system, based on the idea of an evolving relation between the classical, analogue library and web services. From here on the main task became to give 24/7 access to digital library materials, to define standards and business models and to negotiate with rights holders on the conditions. To be honest we did in that starting phase not ask any customers if they could be interested in web access to e.g. music files, we were simply convinced that it was a question of time before the web music had taken over the CD-market as it was some years earlier the case with CD's taking over the market for traditional records. The effort to give access to all kind of web media is of course still highly relevant. We are now able to offer service in all fields but as different stand alone services with almost no integration of analogue and digital material. These differences provide a solution for the Danish libraries.

In the last five years the main effort has been to coordinate the many initiatives and efforts to develop what we see as the new library concept for the knowledge society. Remarkable milestones in that work are two government reports on Library services for Children (2008)[8] and on the public library in the knowledge society (2010)[9]. The latter sets the framework for the situation right now and contains a number of recommendations based on three visions: creating a comprehensive national digital library, creating a new concept for the public library aiming much more on learning and facilitation of the use of knowledge resources, and being a vision on partnerships between libraries and many other types of organisations as means to develop a service that is not collection driven but user oriented and thus much more differentiated than the traditional library service. In relation to development of services the national aspect becomes essential.

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[8] Report on Future Library Services to Children, 2008. - http://www.bibliotekogmedier.dk/fileadmin/user_upload/dokumenter/bibliotek/indsatso mraader/boern/Bibliotekstilbud_til_boern/Report_on_future_library_services_to_children _2008_abstract.pdf
[9] The Public Libraries in the Knowledge Society. - http://www.bibliotekogmedier.dk/fileadmin/publikationer/publikationer_engelske/Report s/The_public_libraries_in_the_knowledge_society._Summary.pdf

4. How to plan for and measure success

Since 1997, we have tried to launch and maintain the best possible spectrum of digital library services. In order to improve the way we initiate and fund digital projects and services, we have – together with important stakeholders - developed changing strategies and objectives for digital library services. Funding criteria have been derived from these strategies and discussed in, and decided on in forums consisting of the most essential stakeholders, like the Regional Libraries Association, Association of Public Library Directors, Local Government Denmark (member authorities of Danish municipalities) and Heads of Development departments at The Royal Library and The State Library.

It was easy to agree upon success criteria, when deciding on continuance of funding for existing services. Such evaluation criteria typically addressed the relative number (relative in the sense of correlated to the size of the intended target group) of users and of visits to the service (including time spent per session) along with some – often qualitative - user studies like usability testing, interviews or questionnaires. These criteria are reasonable and still work for the evaluation of progress and value of a given service, and thereby for making decisions on continued funding.

When it comes to decisions about initiating and funding new services, it has proved more difficult to identify, develop, prioritize and employ effective success criteria. Such criteria were derived from strategies that to some extent had to be based on governmental policies. In other words, funding criteria had been decided according to demands from essential stakeholders, rather than on a systematic review of experiences and existing digital library services.

In the next section, we will try to sum up our experiences and point to what could constitute efficient and longer lasting success criteria for initiation and funding of digital library services.

5. Factors relevant for initiation and funding of digital services

Before deciding on appropriate success criteria for initiation, funding and continuance of digital library services, we need to analyze which factors have influenced the usefulness and success of digital services (e.g. use or impact on knowledge or social life of the users). Our experiences point to that it is impossible to foresee exactly what will constitute a success. Yet, it's possible to identify factors that will lead to failure (measured as little or no use or lack of financial willingness), if they are not given adequate attention.

In the following, we will address the most prominent factors that have either helped or hindered the success of different digital library services. These factors are grouped in:

- Idea and uniqueness
- Knowledge of and interaction with users
- Durability, modernity and willingness to change
- Professionalism
- Cooperation and partnerships
- Marketing and branding
- Business models and national funding

Examples are solely given on public library digital services that have been fully or partly funded by The Danish Agency for Libraries and Media.

5.1. Idea and uniqueness
- Is the service based on unique and solid ideas and concepts?
- Is the idea of the service clear and communicable?
- Does the service offer content, functionalities or presentations that are new or unique?
- Does the service fill out obvious gaps in the digital library landscape?

Libraries face a strong competition when offering digital services to the public.
Traditional search tools and reference services are challenged or maybe even outperformed by search engines like Google and lexical services like Wikipedia.
The view of libraries as being reliable still attracts certain segments, but in order to stay competitive, library services must outperform other services, when it comes to transactional services like search and delivery of documents, or services must add value to traditional functionalities by adding e.g. relational features, like allowing users to employ their knowledge alongside librarians on reference services.

The digital library services that have managed to survive in Denmark were based on ideas so unique and still in line with traditional library profiles that they kept on attracting users. This goes especially for 'The Fiction Portal'[10], (Litteratursiden.dk), a service dealing with fiction and reading experiences aimed at all Danish citizens. The Fiction Portal has kept its unique profile as a service combining library services with fiction knowledge and literature domains and has continued to implement social technologies, which give the users a feeling of participation and ownership. The Fiction Portal had nearly two million visits in 2010, a 15 % increase from 2009.

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[10] http://www.litteratursiden.dk/

An example of a service, where the idea never managed to break through was the previously mentioned 'The Libraries Web Guide', an annotated and continuously updated guide to the best approx. 5000 sites on the internet. This service never managed to market itself in relation to commercial and much bigger guides to the Internet, and it was closed down in the beginning of 2011. The number of visits declined from 434.329 in 2009 to below 400.000 in 2010. The service never reached more than 300.000 unique visitors compared to 1.2 million unique visitors to The Fiction Portal in 2010.

5.2. Knowledge of – and interaction with users

- Is the service based on actual user needs – in contradiction to what it postulates?
- Are development, maintenance and operation of the service set up to reflect shifts in user needs and preferences?

From 1997 to 2005 digital library services were primarily initiated based on user needs postulated by libraries applying for funding. The width of library consortia behind applications for funding was considered evidence of user needs. In several cases, this was proven wrong. 'The Libraries Web Guide' was based on a nationwide involvement incorporating proposers of links and editors from almost every municipal library in Denmark. An even worse example was DotBot.dk, an attempt to create a children's web site involving all children libraries in Denmark. DotBot was launched in 2001 and contained lots of apparently relevant services like questions and answers, guides to relevant websites and other materials, social technologies and more. Yet DotBot was closed down in 2010 based on an evident lack of interest from the children. Our arguments for no longer funding the project centred on lack of ability to identify and meet actual needs of the children, lack of quality in selection and mediation and obsolescence of the conceptual universes employed in DotBot. The experiences with DotBot are very similar to the experiences with the before mentioned BibHit project.

Even when services are based on identified user needs, it is important to be able to keep track of changes in needs and preferences. This is obviously easier for services, where interaction with the users is an integrated and essential part of the service. This goes for The Fiction Portal that encompasses social technologies and multiple facilities for user feedback. It is harder for services like Library.dk, a search tool to all items that have been published in Denmark and all items found in the stock of the Danish public and research libraries. Library.dk is financed by The Danish Agency for Libraries and Media, and as of May 2011, Library.dk contains more than 13 million items. Trying to keep up with user needs and preferences, we perform an annual user investigation of Library.dk involving approx. 4000 users of the service and dealing with satisfaction as well as wishes for future development and applications. As examples of how these annual user investigations have influenced

development, user wishes have lead to e.g. changes in site structure, implementation of a hierarchical guide and implementation of preferred social technologies like rating and comments.

Library.dk is so far the greatest success in digital library services with more than 3.5 million visits per year and 1.5 million unique visitors.

5.3. Durability, modernity and willingness to change

- Is the service updated and appetizing?
- Does the service signal 'old fashioned' or 'on the beat'?
- Are precautions taken to avoid obsolescence?

Durability is closely related to the above dealt with issues of quality of the idea, uniqueness and knowledge of users. The importance of keeping in line with user preferences and user behaviour can't be underestimated. Some of the services that were initiated since 1997 apparently matched user needs. Yet these needs changed or were better satisfied through other services. Even when keeping in line with user needs, the features and design of some services became obsolete.

The Fiction Portal has managed to change radically according to changes in user preferences. In contrast to the fast changes of The Fiction Portal, development of Library.dk is slower and dependent on nationwide decisions involving all major stakeholders. The survival and increasing use of Library.dk is probably mainly caused by the uniqueness and size of the service along with some major decisions on e.g. cooperating with Google on access to Bibliotek.dk from Google Books (today almost half of the visitors enter via Google).

DotBot was an obvious example of a service that didn't keep track with user preferences, and shortly after launching also appeared obsolete according to interface and general trends in web design and communication style. The story of 'The Libraries Web Guide' was not quite the same, since lots of effort was put into user investigations and redesigns. Yet, the general idea of a stand alone web guide to a few selected resources in itself became obsolete.

Durability is closely connected to knowledge of changes in user preferences and needs. Yet, durability can also be secured by employing universes and set ups that are less vulnerable to changes An example of durability along with willingness to change is the 'ask a librarian-service' that is about to shift from a somewhat old fashioned looking portal to a web service that can be employed by any other services, like e.g. The Fiction Portal or the national digital library that we are currently planning on.

5.4. Professionalism

- Is development and maintenance of the service done in a professional manner as goes for:
    - Business model (economy and organization)

- Functionality
- Content
- Presentation
- Marketing

Services become obsolete if users do not commit to them, and users flee if the services do not constantly appear relevant and appetizing. This calls for fast actions reflecting changes in user needs and preferences, and for set ups – as goes for all the above stated bullets - that are very robust to change.

When we stopped funding the operation and maintenance of services, they quickly died, because no appropriate business model could be agreed upon in the library consortia behind the services. We actually tried to help services like DotBot and The Libraries Web Guide to establish business models (not involving national funding), but apparently the libraries are not sufficiently mature to do so. As regards content, functionality and presentation, it seems to be the story that only Library.dk, The Fiction Portal and the Ask a librarian-service has managed to stay in line with modern requirements for a professional set up. This is often done by partnering up with commercial companies or recruiting staff from not traditional library domains.

5.5. Cooperation and partnerships
- Does development, operation and maintenance of the digital service join forces with partners, who are better at:
  - reaching the audience
  - knows the users better
  - are more skilled in developing long-lasting ideas and concepts
- Do services engage in user-sharing with other services?
- Does the service build on a broad participation of libraries and other stakeholders?

To a large extent, durability of digital library services demands that libraries partner up - and divide labour according to knowledge and skills – with other public institutions or commercial partners, who perform better than the libraries themselves in areas like reaching the audience, developing long lasting concepts, developing technical solutions, creating modern and appetizing presentations etc.

Especially when it comes to 'user-sharing', partnerships have proven a productive way to work, the best example being the cooperation between Google and Library.dk, where Google gained more content and Library.dk got new users.

Again, Dotbot, The Libraries Web Guide and the BibHit-project were examples of projects that didn't seek partnerships outside the library sector, being too confident about their idea and attractiveness, and thus failed to reach - or keep on to - their intended target groups.

5.6. Marketing and branding

- Are there solid and prescient plans for making the service known to the target groups?
- Is there sufficient funding for marketing the service?
- Does the service brand libraries as institution or concept?

In order to attract users, it is obviously important to inform them about the existence of the service in a manner that inspires users to try out the service. Library.dk has been part of two national campaigns for public digital solutions which resulted in immediate increases in use at up to 20 %.

Most of the other digital library services have not been able to market themselves outside libraries and the most traditional user segments, and only the Fiction Portal has tried new ways by e.g. distributing an appetizing paper periodical. We do not yet know about the impact of this periodical on the use of the digital service, but the Fiction Portal has gained credit and media coverage from the initiative.

In our opinion, it is necessary that the physical and digital library work together in promoting and inspiring each other and the libraries as a brand. Yet, this is not an empirical prove of success for the digital service, but a political agenda.

5.7. Business models and national funding

- Is there a clear and agreed upon business model in place?
- Is operation and maintenance funded by national bodies?

One of our most important lessons is that without a solid and agreed upon business model, there is little, if any, chance of success for the service.

In 2008 we decided to gradually reduce the funding of operating expenses of digital library services. Yet, this reduction differed proportionally between those services that were in line with the existing cultural and library policies, and those who were not important according to these policies. In other terms, political suitability is one of the foremost effective success criteria for applicants. As mentioned above, The Libraries Web Guide and Dotbot were not able to implement business models that could secure their existence.

We are still, but to a much lesser degree, funding The Fiction Portal and Ask a Librarian-service[11], since they are still attracting many users and are in line with political recommendations in e.g. 'Public Libraries in the Knowledge Society'. It is nevertheless questionable if these services would survive without national funding, because it apparently still causes an almost paradigmatic challenge to the libraries to move budgets from physical to digital materials. Furthermore, the willingness to pay for services offered by other libraries is probably smaller than the willingness to pay for services owned by the Danish state.

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[11] The Ask a librarian-service has almost 1.000.000 unique visitors per year

6. What have we learned

Section 5 suggests, what has been learned through more than ten years of Danish experiments with digital library services.
In our wisdom of hindsight, we can see that we have got closer to aspects that must be given attention, if we are to develop and run digital library services that benefit the public in a cost effective manner.
Development, implementation, operation and maintenance of digital libraries must consider the factors: *Idea and uniqueness; Knowledge of and interaction with users; Durability, modernity and willingness to change; Professionalism; Cooperation and partnerships; Marketing and branding and Business models and national funding*.
Attention to these factors can be made operational, if decision makers and applicants for funding are forced to deal with them by e.g. having to answer for them when applying for funding and reporting on progress.
The factors must be treated holistically, if they should make sense. E.g. *partnerships* don't make sense, if partners do not contribute significantly to other factors like improving professionalism or user sharing.
Furthermore, factors should be translated into success criteria wherever possible. Probably, this is not an easy task, but we are about to see how we can manage it.

6.1. Implementing our learning

Starting with funding applications in 2011, we force applicants to consider and make plans for how to handle the seven factors described in section 5. Also, applicants are forced to set up real success criteria so that we are able to evaluate progress of the projects and services.

Furthermore, we have tried to make use of our learning in the process of developing a new children's digital library 'Palles Gift Shop'[12] (Palles Gavebod), where we have:
- Engaged with a professional vendor on the development of the concept and universe
- Built services on open source or on national services like the database behind Library.dk
- Managed to establish a business model that not solely relies on national funding, but incorporates a consortium of regional libraries, as well as a thorough structure for the production of content, functionalities and presentations involving all libraries along with commercial vendors.

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[12] http://www.pallesgavebod.dk/

7. Conclusion

Going through the application schemes that we have used from 1997 up till today, we can see that focus has shifted several times reflecting lessons learned:
1997-2003 Funding focused on new ideas with broad participation among public libraries aiming at including as many libraries as possible in building digital services
2003 – 2005 focus on clarity of concept and idea as a reaction against too many weak projects
2005 - 2008 experiments supporting strategy to create digital services reflecting and enhancing library services in the traditional library
2008 – 2010 from transaction to relation with focus on inclusion, enabling, interaction with users
2010 – national digital library – a concept on cooperation between all municipal libraries and the state to create large initiatives that bring efforts together:

After more than ten years work with development of digital library services based on state funding to development work in front running libraries we thus end up with a clear recommendation that the future work should be organised on a national level and within the frames of a National Digital Library. The challenge is to create integrated access to analogue as well as digital resources, to ensure a digital library service in all fields, and to create an organisation that can actually develop a coherent digital library and that is able to run and maintain these services at an up to date professional level.

We have already presented some of the ideas for a digital library in the library website for children 8-12, 'www.PallesGavebod.dk' a kind of prototype on a digital library, where the access to digital and analogue resources are integrated, and the presentation of many different services and offers are wrapped in a storytelling universe appealing to the target group. Our basic ideas for a national digital library are to join forces in the first place between all public libraries and the state to create a three layer architecture, where data and applications are common, while the presentation layer can be individualized from library to library. Likewise we go for a service oriented architecture and open source.

In a –hopefully- up-coming first version of a Danish Digital library we will - learning from our lessons - consequently build on partnerships. We will ensure several possibilities for users to participate, working with the range of possibilities in social technologies. The services should be clearly targeted and digital services should both work like any other webservice (or better) and relate to the library space, as the connection to the library space and its offers is one of the obvious value adding advantages of digital library services. And as a very obvious lesson from the work of

previous years we should with every new service be very clear on what we want to achieve and how we would measure it, so success criteria should be well defined.

Doing all this will probably not prevent us from failures in the coming years- but we will be much wiser about that in ten years time.