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Turning weakness into strength: Strategies for future LIS

Abstract

Purpose – LIS has been described as a fragmented field in crisis, with an increased competition from other fields; and lacking in development of theories. This article aims at articulating a strategy in which the perceived weakness can be seen as a source of strength.

Design – The text builds mostly on reflections on meta-theoretical and science-organisation literature. 10 distinct problems for the research field are identified and discussed in order to provide a viable strategy for the future.

Findings – While it is common to suggest a convergent movement toward the idealised characteristics of the strong research discipline as a recipe against fragmentation, we suggest a strong convergent movement that feeds off on the fragmented character of the field. What is commonly perceived as a weakness, the multidimensional character of the field, can be translated into a strategic resource.

Originality – The article provides a fresh perspective on the strategic situation of LIS.

Keywords fragmented adhocracy, divergent research field, convergent research field, informational turn, mutual dependency, task uncertainty

Paper type Viewpoint

Introduction

Warner (2001) posed the question: "W(h)ither information science?/!", discussing signs of a field in crisis. Library and information science (LIS), with its numerous research orientations and differences in levels of coordination and standardization, it could, in Whitley's (2000) terms, be characterized as a fragmented adhocracy, a type of research field likely to develop into further fragmentation according to Fuchs (1993). In analysing this perceived crisis, it is easy to connect fragmentation and crisis to problems related to the intellectual development of LIS identified some 35 years ago (Brookes, 1974), as well as issues in terms of the social organization observed in the late 1980s (Vakkari, 1996) and still remaining in the 21st century (Pettigrew and McKechnie, 2001).

The fragmented nature of LIS can be further exemplified by a variety of views on procedures, approaches and even the *raison d'être* of LIS. A widely accepted motivation for doing LIS research is that it supports the dissemination of relevant information. A field that exhibits such a strong identification with the needs of practice tends to uphold an identity of dealing with applied research. An alternative viewpoint, though, is to gain understanding on information-related phenomena without any further motivation in terms of applicability (i.e. doing basic research). There are also varying opinions on how LIS research should be performed, making the development of new viewpoints a major theme in the meta-analytical literature, suggesting different epistemological, theoretical and methodological perspectives (e.g. Brookes, 1974; Harris, 1984; Hjørland and Albrechtsen, 1995; Hjørland, 2002a; Wilson, 2003; Ingwersen and Järvelin, 2005).

In this article, we intend to supply a new perspective on the fragmented nature of LIS research. We will argue that LIS, backed by a sound strategic plan, could use a fragmentation as a valuable resource.

The conventional strategy for countering fragmentation is integration or concentration of ideas toward a more paradigm-like research field. The intention is to stimulate a transformation into what Becher and Trowler (2001) call a convergent research field, with strong boundaries easy to defend. The opposite, the fragmented adhocracy, is with this vocabulary called a divergent research field, characterised by weak boundaries that are unclear and frequently crossed from both sides. Over the years, several attempts have been made at supplying more convergence, something discussed by Åström (2007) and Nolin (2007) and most clearly promoted in recent years in Ingwersen and Järvelin (2005).

We argue that the extent of the fragmentation is too severe for the conventional strategy. We also maintain that there is something valuable to be found in keeping LIS research together. Furthermore, the field desperately needs some kind of strategy for dealing with the problem of fragmentation. LIS is the veteran when it comes to information studies, but we find an increasing competition from research fields with a more solid economic and academic base.

Analysing LIS in these terms is a fascinating challenge which brings us beyond the established studies of how research fields develop. We propose that the heterogeneous nature of LIS does not necessarily mean a fragmented or withering LIS field. Whereas Whitley's (2000) theories are related to disciplinary based fields, Gibbons *et al.* (1994) suggest an organization of the post-1945 sciences based on interdisciplinarity and applications-oriented research, so-called 'Mode 2'.

We suggest that these tendencies cannot only be monitored, but also influenced by self-reflection and strategic work. This article will roughly outline such a strategy, building on both a divergent and a convergent movement. In order to put this together, we will assemble different pieces in a kind of jigsaw puzzle. *We promote the idea that a research discipline that manages to draw power and resources from its perceived weaknesses is ideal in today's*

complicated research landscape. We will argue, to put it in detective jargon, that LIS has the motive, the means and the opportunity to make this transformation.

Meta-reflexive studies as a strategic resource

This article can be characterised as meta-reflexive. It is a contribution to a specific genre of the field that can serve as a resource for a strategic work concerning the future identity of the field. The purpose is to increase our self-understanding of the field, its boundaries, agendas and position/character in the academic landscape.

Meta-studies have also been performed from various perspectives (e.g. Buckland, 1996; Ingwersen, 1992; White and McCain, 1998). While an important ambition has been to describe and define the field, no one has managed to present one generally accepted definition of LIS.

An important part of our argument is that research disciplines that are able to generate self-understanding can also react strategically in order to counteract negative tendencies, converting weaknesses into strengths. Through an understanding of the perceived crisis, we are able to reinterpret the notion of crisis and see the challenges as signs of changes in academic research and society in general. Thus, this article will generate a rough outline of a strategy for turning weakness into strength.

Our analysis is to a large extent based on other meta-analytical LIS reflections, with a certain emphasis on empirical investigations. Furthermore, our line of reasoning is influenced by a set of theories on the development and organization of the sciences, primarily frameworks developed by Whitley (2000) and Becher and Trowler (2001).

The dual origin of LIS

An important part of the origin of LIS dates back to the 19th century efforts for developing general rules for classification and cataloguing. LIS was, in this way, in a fundamental

manner built on practice (Harris, 1986). The establishment of The Graduate Library School at The University of Chicago in the 1920's was motivated by an ambition to create an academic foundation for the library profession. This further strengthened the connection between practice and library science research.

However, in terms of origin, there is also an alternate development in the way that LIS was influenced by other fields. The original development of information science, as seen in e.g. information retrieval (IR) research, has, to a large extent, taken place in fields as the computer sciences and somehow developed as a support function to hard science and military research in the 1940's and -50's (Buckland, 1996; Rayward, 1997; Vakkari, 1994).

Defining the historical origin is central in creating a framework around core concepts for a scientific movement (Frickel and Gross, 2005), but for LIS, the origin is dual, with large variations in terms of how the origin has affected the development of the field.

'Normally', research areas develop into disciplines by establishing academic infrastructures and gathering sufficient resources and credibility (Frickel and Gross, 2005). In LIS, the 'normal' development can be seen in e.g. the evolution of IR research into information science. There are, however, also roots from the field of practice, where research activities have evolved within an already established disciplinary structure. This is, to some extent, analogous to the process the engineering sciences went through in the 19th century, as well as the medical and juridical sciences in the early 20th century. The engineering sciences were quick to establish close connections to other research fields. The medical and juridical sciences were also established as academic research fields relatively fast. For LIS, however, the process has been slower; and research development has, to a larger extent, been dependent on local academic environments.

There are parallels between the development of LIS and the professionalization process of the librarians, with problems in reaching a full professional status due to a lack of unique

knowledge claims (Etzioni, 1969; Witz, 1992). However, applications oriented research and connections to non-academic fields are major traits in the post-1945 sciences (Gibbons *et al.*, 1993); and the professional role of the librarians has also been renegotiated, both in terms of how the role *per se* is perceived and how professionalization processes are analyzed (Schreiber and Elbeshausen, 2006; Sundin and Hedman, 2005). Still, LIS have experienced difficulties establishing itself in academia, especially for LIS institutions at humanities oriented faculties and LIS research. These have often grown out of the field of practice rather than from other research fields. Of the 50 European LIS departments surveyed by Larsen (2005), 35% were housed within the arts and humanities, 15% within the social sciences, 13% at communication and media, 9% within business/management, 4% at computer science and 24% within 'other'. This supplies an image of a quite amazing heterogeneity with a great variety of alliances. It is probable that the multidisciplinary nature of LIS, with relations to other fields of research as well as the field of practice, makes it hard to establish exclusive competencies.

The close relation to the field of practice as well as to other research fields is apparent e.g. in impact on the terminology within the field (Åström, 2006). The level of formalization of terminology is an important aspect of reputational autonomy. Common sense vocabularies tend to emphasise ambiguity and variations in possible interpretations of results. This increases the possibility for external agents to have an effect on how work techniques and problem statements can be understood and evaluated. It indicates a high level of task uncertainty (Whitley, 2000). There are LIS sub-disciplines where the levels of formalization of terminology, methodology, and so on, are higher, e.g. informetrics, and the level of task uncertainty lower. However, the general level of task uncertainty varies in relation to research areas that are developed out of other research fields, disciplinary LIS or the field of practice.

From our perspective, these variations of task uncertainty constitute an essential tension within the field which we will discuss further below.

Task uncertainty and mutual dependency

The disciplinary development of LIS is diverse, with institutions at most kinds of university faculties, as well as at university colleges and independent organizations (Larsen, 2005; Åström, 2008). The varying organizational affiliation suggests a position where local situations are more important for access to resources than the position within the field. Whitley (2000) describes this as significant for low levels of mutual dependency. This is, notably, another kind of fragmentation than the one related to the many subfields. LIS departments will, therefore, to a large extent be shaped by local factors. There are substantial variations, though. Whereas there are institutions where local conditions are the main factor for distributing access to resources, there are also many institutions allocating access to resources depending on coordination with intellectual goals of the field in general. This would imply a higher degree of mutual dependency. However, while mutual dependency increases, the room for alternative research procedures is reduced. Fields or institutions with low mutual dependency and high levels of task uncertainty tend to have a more individualistic organizational culture, increasing opportunities for pursuing alternate (and innovative) research agendas (Frickel and Gross, 2005; Whitley, 2000). This tension within the field, upholding both high and low mutual dependencies, can be seen as a weakness. However, from our perspective, it has the potential of becoming a major strategic resource. Still, this may only be the case if this resource is approached with a clear strategic mindset.

The existence of many institutions with low mutual dependency actually constitutes a major stumbling block for the traditional convergence strategy of creating international research standards. As local actors and institutions are free to pursue their own local academic and creative agendas, we find a multitude of definitions, along with varying research

orientations and institutional structures. Altogether this gives an impression of a research field with a vague identity, difficult to define. Even the name of the field is becoming increasingly debated. Many institutions have focused on 'information science' or 'information studies', while the use of 'library and information science' has decreased considerably.

However, efforts toward a convergent LIS research might have less positive effects on the connections between LIS and the field of practice. There are many aspects influencing the practice not covered by areas such as IR and informetrics. Arguably, the diversity and multidisciplinary character of LIS is a necessary resource for meeting the needs of practice. A less heterogeneous field might stand a better chance of further acceptance in academia, but on the other hand risk a weaker relationship to the field of practice. In addition, there is the question whether it is the strategically right thing to do to strive for a development towards a stronger disciplinary-based academic organization. The traditional research venture relies heavily on a principle of specialisation on a certain subject area, scrutinised systematically from one carefully refined perspective. This is the kind of paradigm based research characterised by Kuhn (1970) as normal science and criticised by Funtowicz and Ravetz (1993) in their articulation of post-normal science. Perhaps the future reorganization of academic research will be based on principles more similar to the way LIS already is organized? We will argue that what is often conceived as a problem from the vantage point of 'normal science', can be deemed an advantage from the perspective of 'post-normal science'. While the former is characterised by an avoidance of anomalies and perspectives that does not fit the paradigm, post-normal scientists find that they cannot afford the luxury of a narrow perspective. Researchers should therefore rely on 'extended peer-review', consulting relevant experts outside the discipline and even outside academia.

Today's digital society serves as a suitable backdrop for rethinking the present and future identity of the research field. The practice field is also going through significant

changes, in terms of new areas of practice as well as a new or at least re-negotiated role of information professionals, the libraries and the librarians. We see a radical transformation in what kind of training library and information institutions need. The expanded role in the scholarly communication process increases the demand for librarians with knowledge of e.g. informetric methods, while the focus on information competencies leads to a certain decrease in the need for e.g. technological skills. At the same time, the need for pedagogic skills and the ability to analyze different user contexts have increased significantly (e.g. Schreiber and Elbeshausen, 2006; Sundin, 2006).

Obviously, the research field needs to change in order to adapt to these changing circumstances. However, while we are changing, why not do it with a sophisticated strategic goal in mind? In order to articulate the rough outlines of such a strategy, we need to more clearly conceptualise the problems of the field.

Visualising the crisis: 10 problems

When discussing the perceived crisis of LIS, 10 sets of characteristics appear as central. In the following, we have conceptualised these and assigned each of them a concept. Thereby, it becomes much easier to see the whole picture and discuss possible strategies for devising a stronger LIS field. Several of these problems are connected and there are sometimes aspects of causality involved. However, we feel that there are many advantages found in identifying and analysing specific problems as separate entities.

First, the origin of LIS is tied to a field of practice. This has always been a source of strength, but it has also created a pattern of dependency. We will call this the *external dependency problem.* From our perspective, it can also be seen as a potential source of strength. The field is clearly linked to alternative expertise outside of academia.

Second, the heavy reliance on practice led to a late translation into an academic subject of its own. This can be termed the *maturity problem.* A

Third, this late maturity created a historic pattern of depending on the insights of other research disciplines. As LIS didn't have an academic tradition of its own, it became not only dependent on the field of practice, but also to other academic traditions. One can speak of *an internal dependency problem.*

Fourth, there is a complicated relationship to be found between the entities that are called either library and information science or information science. Are they e.g. two separate fields with strong connections to each other (Saracevic, 1999) or is library science a R&D activity within information science (Ingwersen, 1992). A reading of Whitley's (2000) theory would support Saracevic' position; and LIS could be broken down into at least two distinct research fields, given the organizational variations. There are, of course, other aspects, joining the library and the information research fields together. One is the historical tradition, in terms of a long relationship between information science and library science, as libraries have been central for disseminating information on a professional basis. Furthermore, current tendencies towards an integration of research areas as OPAC research and IR, and knowledge organization and informetrics, support a view of the two fields as one (Åström, 2007; Saracevic, 1999). In any case, in practice a multitude of different institutions interact with each other, with very similar research perspectives, but with different labels attached. There are obvious difficulties involved in establishing an identity as long as there can be so many different emphasis on the discipline. We can talk of a *label problem.*

Fifth, the multitude of subdisciplines, grouped under the label, mirrors the diversity of topics that is possible to link both to information and library. This is the *heterogeneity problem.*

Sixth, many subdisciplines also have an interdisciplinary character. However, in many cases, it is difficult to generate actual cooperation and interchange. As with the increased communication between library science and information science, there are also tendencies

towards a greater level of interdisciplinarity, with e.g. informetric and IR research intersecting more, as well as IR and information behaviour research (Åström, 2007; Zhao and Strotmann, 2008). Since the level of interaction between different LIS areas is relatively low, a correct classification of LIS would probably be described as multidisciplinary rather than interdisciplinary (Klein, 1990). In any case, this can be called the *interdisciplinary problem.*

Seventh, LIS nurtures closeness to other disciplines and frequently import theoretical ideas from strong disciplines. In practice, each of the many subdisciplines, referred to above, are potentially connected to a unique multidisciplinary context. Ergo, there is a tendency for subdisciplines to move away from LIS, increasing fragmentation and establishing a kind of autonomy in relation to a perceived core within LIS. We can talk about this as the *divergent problem.*

Eighth, LIS has a strong tradition of researching information from many different perspectives. However, given the data and information revolution of recent decades, more and more disciplines have begun to take an interest in information as a research subject. This has sometimes led to interesting forms of collaboration and sometimes to aggressive takeovers. Wilson (2002) discusses one kind of process of convergence, in which LIS departments must develop strategic alliances in order to survive. Due to the internal dependency problem, discussed above, takeovers can at times proceed with ease. This will be termed the *competition problem.*

Ninth, there are plenty of LIS research areas and institutions that are small. Many institutions, evolved out of e.g. masters programs, are struggling to establish themselves at the local university as well as in academia. Since they have not developed out of specific research areas; and given the requirements of a broad educational program; they hire faculty members with varying backgrounds for educational purposes. One result is scholars formulating research problems without strong connections to local environments, more or less integrated

with the field in general (Åström, 2008). There are many aspects of the other problems involved in this one, as well. However, more specifically, we can identify a *problem of critical size* that is troubling since the research field is so rich. In her survey of 50 European LIS departments, Larsen (2005) found that 27% had 0-10 full-time staff members. A local research environment that only consists of a few members must, therefore, be either heavily specialised or attempt a shallow view of the many issues involved.

Tenth, the fact that some LIS departments are very small and some very large, creates a special problem. In some areas, we find integration in the form of an increased cooperation with neighbouring research fields, in other contexts there are signs of a boost in recognition of LIS as an academic discipline in its own right. We have already discussed this interesting tension in the form of a great variation between high and low levels of dependencies. Some institutions have a more or less established disciplinary structure but, still, show little result in terms of research (Åström, 2008). This raises the question whether to focus on strong research areas and environments, potentially strengthening the position of LIS in the academic world. This would leave other research areas and institutions to either form alliances on their own, or in a worst case scenario: follow the path of the library schools at e.g. Columbia and Chicago University, the first university affiliated library school and the first graduate library school, both of which are now gone. As there is a risk that the strong and weak departments may go different ways, we can talk about a splitting problem.

In the following, we will characterise the competition problem as the actual key to turning weakness into strength. Here lies the heart of our problem and the very real risk of us being swallowed or marginalised. It is actually connected to all of the other problems. However, it is our intent to suggest that our position as challenged by, as well as interlinked with, a series of other disciplines, is something that strategically can be exploited. It can be

turned to our advantage as we purposely translate competition to collaboration on our terms. Let us therefore look more in detail at the complexities of the competition problem.

The competition problem

Being able to define the field is central for controlling the identification of the field and the characterization of the domain, an aspect of reputational autonomy. A vague and debated identification of the field is an indicator of a low level of reputational autonomy, increasing the risk of 'intrusion', in terms of 'outsiders' making significant contributions to the field as well as other fields 'abducting' research areas (Åström, 2004; Whitley, 2000). A rather extreme example is the forming of an information science department at the Social Sciences Faculty of Uppsala University, Sweden, which did not include an already existing LIS unit at the same university but at the humanities faculty (Åström, 2008).

The establishment of LIS boundaries has become increasingly important due to an increased competition from other disciplines. However, considering the problems of reaching consensus on the definition of LIS, we must ask: to what extent is LIS able to maintain those boundaries? One aspect is the long-standing goal of acceptance and status of LIS in the wider academic community. In many settings, the process of attaining recognition as a discipline and fairly competing for funding from research councils has been hampered by conservative elements in the bureaucracy of research policy. For instance, both at the Finnish Academy and the Swedish Research Council, the infrastructure for administering LIS research applications is poorly or not at all developed. This has led to LIS funding applications being dealt with by committees and referees with little or no LIS competence; clearly at a disadvantage in competition with a wide array of more established fields of research (Åström, 2008).

Another aspect is the risk of research topics being 'abducted' by other fields. In an analysis of research specialties, 'imported ideas' reached an amount where they could be identified as a LIS specialty (White and McCain, 1998). There is a significant amount of

authors from other fields contributing to LIS journals whereas articles in non-LIS journals, referring to LIS research, traditionally have been low in number (Cronin and Pearson, 1990).

The export of LIS ideas to other fields seem, however, to have increased over the last decade. Cronin and Meho (2008) show how information studies have started to make a significant contribution of ideas to e.g. computer science and engineering as well as to business and management studies. Still, both these issues reflect problems of creating and maintaining monopoly on LIS competencies, as well as boundaries towards other research fields. These are actually, from our perspective, aspects of the internal dependency problem and the divergent problem.

The most obvious example of the competition problem is how LIS research issues have gained interest from other fields of research. The relationship between the computer sciences and LIS is complex and long-standing, but whereas the computer sciences have gained momentum along with an expanding IT industry, LIS has increasingly become less interested in systems and algorithm development issues (Åström, 2007). One, perhaps somewhat harsh, interpretation of the decline of systems oriented IR is out of necessity. When the computer scientists become better at systems and algorithm issues, LIS scholars need to look for alternative objects of investigation, turning the focus to human and user aspects of information systems. Meanwhile, e.g. psychology has taken an increasing interest in issues on representation and organization of knowledge, management studies scholars are important contributors to information management literature; pedagogy deals with the use of information as an aspect of learning and sociology leads the academic discussion on the 'information society'.

Another side of the coin is the merging of different information related fields into 'information schools' such as the I-schools at The Drexel University and The University of Washington, as well as e.g. Faculty of Information Sciences at The University of Tampere.

Aside from the I-schools 'proper', there are also other examples of merged departments such as the Department of Library and Information Studies in New Zealand has become part of The School of Communication. In Norway, The School of Librarianship has been swallowed into The School of Journalism. At these 'compound' institutions, we find LIS together with e.g. various computer science areas.

Wilson (2002) introduces a strategic view on this kind of competition problem and discusses three types of strategy:

- Expansion (diversification, merger, takeovers)

- Divestment and contraction (drop programs and focus on what we do best)

- Loss of identity with survival of function (merge as a weak partner that quickly loses its identity)

Wilson's own analysis ends up with a recommendation of convergence and collaboration. We actually agree, but with a crucial change in emphasis. While Wilson recommends institutional convergence, our recipe is epistemological convergence.

Competition as collaboration

As we build on the identification of 10 key problems and the specific role of the competition problem, we can perceive LIS as a discipline in transformation, moving in several directions at the same time. In a research field that is characterised by both high and low mutual dependencies, we will find attempts at both strengthening and weakening the boundaries of the field. A hopeless situation, it might seem, but perhaps this can also be seen as a kind of resourceful flexibility. It can be a matter of having the best of both worlds, being both strong and flexible. Our strategic evaluation of the situation is in a major way dependent on the character of the interaction around the boundaries. Do we find competition and hostile takeovers or is it instead a matter of collaboration, characterised by mutual respect?

Obviously, there is a lot of competition. In many instances, LIS is making defensive movements due to the aggressiveness of other research fields. This also can lead to proactive movements of integration to offset the threat of 'hostile takeovers'. Several of the 10 identified problems create vulnerability for LIS in the academic power play which sometimes exhibits traits of the Darwinian survival of the fittest. The maturity problem and the internal dependency problem make it possible for members of other research fields to argue that important areas of information research should be pursued by research specialities which have a tradition of being more centrally placed within academia. The label problem and the heterogeneity problem make it difficult for us to exhibit an image as a congruent research field. Furthermore, the interdisciplinary problem and the divergent problem have created a situation in which other researchers from stronger traditions may argue that various specialities of LIS already have a tradition of mixing with other disciplines. It can be argued that, at an informal level, the boundaries have already been redrawn. Finally, the broader range of topics researched within LIS in combination with the problem of critical size and the splitting problem, creates a context in which it is possible to question the seriousness of this specific academic construction.

One specific defensive movement as a response to competition, hostile takeovers and perceptions of weakness is integration. This, in turn, is articulated in two different ways, institutionally, toward information schools and within an epistemological dimension, the articulation of a core, for instance made by Ingwersen and Järvelin (2005). Institutional and epistemological integration are two very different strategies. In the former case, the identity of LIS is weakened every time a department is converted into an I-school, although the aforementioned I-schools at Drexel and The University of Washington often are mentioned as examples of LIS success stories. With epistemological integration there is an attempt to find a traditional disciplinary core that can serve as a resource in the context of the competition

problem. There is also an obvious risk with that kind of movement, since it may serve to streamline what is actually a very heterogeneous research field and thereby exclude researchers. These may, instead, gravitate toward other disciplines.

There is also a large amount of collaboration at the boundaries of LIS. This is the normal lifeblood of research in the form of different partnerships of a more or less formal character. LIS, with its broad array of research topics, interacts with a great many research approaches within the human, social and technological research fields.

Our argument is that this great diversity of forms of collaboration can be seen as a weakness, but also as a great strength. If it would be possible to work with a strong movement of epistemological integration, then we would have a subject that both has a strong identity and, as well, is connected to a wide range of different academic disciplines.

Consider, also, that all of the vulnerabilities discussed in connection with the defensive reaction to competition can be translated into collaboration. If we really are able to generate a core, an identity of who we are, in conjunction with collaboration, we have the strength to turn our competitors into willing collaborators. The traditional problem, of collaborating with fields more established in the academic community, is that a less developed research field takes on the role of the underdog. By moving into collaboration from a position of strength we instead give value to other established research fields in a way that enables us to be perceived as a valuable resource rather than a weak underdog. Thereby, we can build on the fruitfulness of interdisciplinary efforts; which sometimes are described as a dissolving of traditional research areas (Gibbons et al., 1994). This is an idea that we need to scrutinise further: the idea that there is a choice to be made between either being open, flexible and weak or closed, rigid and strong.

Divergent and convergent turns

Describing LIS as a 'fragmented adhocracy' may in itself not be sufficient to evoke a sense of crisis, at least as long as we agree on Whitley's (2000) categorization of research fields that enables us to maintain the notion of LIS as one field of research. However, following Fuchs' discussion on scientific changes, the future development of LIS would be characterized by a continuing fragmentation process because of the organization of the field (Fuchs, 1993); and the question if the result would be that of the withering of LIS, was brought up by Warner (2001). These are ideas that evoke images of entropy, of something that was once whole, but now has crashed into a myriad of fragments in a continuing big bang process. Once there was a centre of gravity, but eventually it loses its power and the universe becomes a place with no discernible centre.

Another way to address the same phenomenon is to utilise the distinction between a convergent and divergent research field (Becher and Trowler, 2001). The boundaries of a research field can be convergent, signifying a homogeneous research community that sets up a very clear boundary that therefore is easy to defend. Contrary to this, another research community may work with divergent boundaries, which are much less clear and more difficult to defend. In this case, many researchers colonise areas very close to the border and may frequently cross over to the other side.

Nolin (2007) applies these distinctions to LIS and clearly positions this subject area as divergent. Nolin also connects the distinctions to the concept of 'the turn', a strategic catch term that can be characterised as some sort of cognitive interruption within a research tradition. Examples of 'turns' articulated within LIS are:

- The cognitive turn (Belkin, 1990; Ingwersen, 1992).
- The informational turn (Wouters, 2007).

- The user-centered turn (Zweizig, 1976; Dervin, 1989; Dalrymple, 2001; Talja and Hartel, 2007).

- The epistemological turn (Brier, 2003).

- The historical turn (Rayward, 2004).

- The pragmatic turn (Hjørland, 2002b).

By identifying different forms of 'turns' within information science, it becomes possible to talk about three types of turns: a *weak convergent turn,* a *strong convergent turn* and a *divergent turn*.

The *divergent turn* is possible to describe as a kind of peaceful revolution. A number of scholars simply go their own way, turning away from the core identity and towards a space of their own. Such a movement is difficult in a traditional, convergent discipline with a strong identity. In such a setting, we would find that fundamentally new ideas would challenge the core ideas of the research field. This would be the kind of process described by Kuhn (1970) in his characterisation of normal science governed by a strong paradigm and eventually challenged by revolutionary science.

However, in the divergent research field we may see researchers turn away from such conflicts and instead move toward a space of their own, often through a connection with an interdisciplinary context. The idealised Darwinian process of normal science being challenged by revolutionary science, presupposes a hard research discipline where the core ideas on a paradigm are distinctly tied to careers. In the case of a divergent research field, boundaries are much softer and it is possible to turn away from conflict and confrontation with the core. Instead, researchers can form alliances with researchers from other disciplines that have a similar approach.

A *weak convergent turn*, such as the two historical turns described by Rayward (2004) and the reflexive turn in science studies (Woolgar, 1991; Pinch, 1993), aims at self-reflection. As such, this movement strengthens the field by creating a stronger sense of history, theory and identity. However, the ambition is not to change the divergent character of the field.

Finally, the *strong convergent turn* is an attempt to move toward a stronger disciplinary identity and a core. It may specifically counteract the divergent character of the field. It is, however, very difficult to articulate a fresh set of ideas with the kind of appeal needed. In addition, the strong convergent turn is a combined social and cognitive movement. Generating strong and innovative ideas is not enough, it is also a matter of who you are and what kind of network you have. The strong convergent turn must mobilise broad support from the research field. In order to articulate the immensity of this movement, we suggest that the following six elements must be present in order to facilitate success:

1. The new perspective suggests a fresh epistemological foundation that many can share.
2. The new perspective implies a dramatic (paradigmatic) turn toward an intellectually stimulating perspective.
3. The convergent turn should demonstrate a strong added value; it would seem to be fruitful to follow the turn.
4. The convergent turn should build on a strong social or intellectual capital.
5. Researchers with high stature in the field should propose the convergent turn.
6. The new perspective is backed by a strong external tradition.

Historical and current examples of turns with a strong convergent potential within LIS could be:

- The cognitive viewpoint (Belkin, 1990) following the cognitive revolution within psychology (Miller, 2003).

- The turn away from positivism (Harris, 1986; Wilson, 2003).

- Turn of direction: starting from the human rather than the technological (Saracevic, 1992).

- The pragmatic turn (Hjørland, 2002b).

- The extended cognitive viewpoint: Ingwersen & Järvelin (2005).

Let us now connect this discussion with the one in the last section. An epistemological integration can also be characterised as a strong convergent turn, actually an alternative to an institutional integration. The latter is a formal movement based on the politics of academia. The epistemological integration has an informal character and gathers momentum from ideas rather than from politics. However, in order for it to work, it must have the strength of a social movement.

Similarly, we can talk about fragmentation from an organizational perspective, and the concept of a divergent research field comes from the same direction. However, by discussing a divergent turn, we can connect to concrete schools of thought that in different ways move away from mainstream LIS research.

As we perform this translation, it becomes obvious that LIS research does move in both directions (integration/convergence and fragmentation/divergence) at the same time. This twofold movement in opposite directions can be conceptualised as a problem. However, we are more concerned in characterising it as a resource for building a strong research field. In order to continue to develop our point, we must first discuss the different ideals that can be associated to these two movements, to the strong convergent turn and to the divergent turn(s). It is our position that LIS should strategically work to combine these.

The strong convergent turn

What is the goal of the strong convergent turn? What is it that researchers hope to attain? The most basic ambition probably is to emulate the traditional strong disciplines, as they have been characterised by e.g. Kuhn (1970). It is important to remember that Kuhn was not promoting this as an ideal situation; on the contrary, he was quite critical. Furthermore, his descriptions are based on science from a different time, in which research practices always were performed within a discipline and there were sturdy barriers both toward other disciplines and toward society. The idealised image of the strong discipline is therefore also built on an Academy distanced from society and living by its own rules. As this kind of aloofness from society is out of fashion today, we must recognise that there are major difficulties with the ideal of the strong discipline. In a way, its strength is also its weakness. A strong discipline has a very clear sense of its identity. It is at its best when applying a set of standardised perspectives and speaking its mind. However, since it is so set in its ways, it has difficulties in listening and fully understanding other perspectives. The strong discipline has developed sturdy boundaries creating a clear identity that also makes it possible to describe collective research activities as involving a common focus. Researchers within such a discipline can communicate at a sophisticated level, because they share the same conceptual vocabulary. Furthermore, they have read and discussed the same classical texts and regularly meet at the same conferences.

However, strong boundaries also have a drawback in the way that they exclude actors from other disciplines and those outside of academia. Researchers active within such an idealised setting perceive congruence between different theoretical approaches. There may be conflicts, but these are played out on predictable arenas and involving researchers with basically the same worldview and research ideals.

Researchers with such a practice are firmly rooted in the classical ideals of academia, which also means that while there is a connection between research and education, there is a certain distance between theory and practice.

The major strengths of the convergent research agenda can be summed up as theoretical depth, nonbiased knowledge production and congruence. The knowledge developed with the tradition of classical academic ideals produces deep theoretical insights. Knowledge production is not steered by practice or external interests, but rather by the ethos of academic tradition. Furthermore, sophisticated and specialised discussions can be developed since researchers within a speciality deal with the same framework and vocabulary.

The major weakness is that knowledge produced may increasingly become so distanced from reality and exciting developments in other research traditions that an obsolete and closed knowledge tradition may develop. This can also lead to poor quality control in form of a peer review process that systematically restates the same narrow perspective (Funtowicz and Ravetz, 1993).

Our standpoint is that the values of the convergent research tradition are still attractive, but we must be aware of the presence of considerable drawbacks. If, however, one were to combine the convergent ideal with the divergent ideal, something very exciting would happen. Let us therefore look more closely at the ideals connected to the divergent turn.

The strength of many divergent turns

When strategically approaching LIS, we are not discussing an individual divergent turn, but rather a large amount of approaches that have moved away from the traditional core of the research field. The ideals we find connected to the divergent turn are in many cases the very opposite of those discussed above. Instead of fostering and purifying core ideas and the disciplinary perspective, the important thing here is the meeting of minds and the transformation of perspectives that follow. Instead of the development of strong demarcations,

weak boundaries are developed that are useful in some circumstances, but in others quite meaningless. Boundary spanning (Fisher, 1990; Palmer, 1996) and interdisciplinary networking are more important than upholding a set of disciplinary values. Researchers that work close to the boundaries become excellent listeners and proficient in shifting perspectives. They may, however, have difficulties in building an identity.

The researchers that are fostered at the boundaries of a subject such as LIS often appear flexible and open-minded. They frequently explore and adapt new perspectives. While finding a role and distinct perspective certainly is important, the emphasis is on merging different competences rather than highlighting the individual perspective.

It is easy to see the advantages of this type of research as well. There are also disadvantages. Researchers can be 'homeless' and find difficulty in finding an intellectual backbone from which they can reach a sophisticated level of analysis. It can become troublesome to focus on certain aspects in depth according to the ideals of the traditional disciplines.

To us, it is obvious that a subject such as LIS needs both these types of research practices (convergent and divergent). Furthermore, *if we can connect these two to each other, we would be able to, to a certain extent, counteract the drawbacks of both strategies*.

The strength of combining different kinds of turns

There is an interesting dynamic in the current development of LIS. As we see it, the field seems to be heading in two different directions simultaneously. One is the tendency towards integration (convergence) of at least some research areas within the field. The other is played out through the heterogeneous nature of LIS. It can be characterised as several divergent turns and is also evident throughout the history of the field. In the background we find changes in society and information technology in general, in academia and in the LIS field of practice, in terms of new tasks and new professional identities.

This also relates to LIS researchers often displaying poor self-confidence concerning ideas on the organization of research, as well as theories on professional ideas and competencies. The notion of LIS as a field in crisis, as discussed by Warner (2001) is popular together with a sense of inferiority and lack of maturity. Leading researchers in the field have often discussed LIS as a field lacking in maturity (Brookes, 1974; Hjørland, 2002a).

In strategically moving toward a research field that explicitly is both convergent and divergent at the same time, it is possible to generate strong ideas and ideals (convergent) that nevertheless are vital as they take nourishment from a number of very different kinds of research practices (divergent).

The convergent movement can build on the resource of being uniquely hooked up to so many different research practices. In this way, the external dependency problem becomes a resource and a source of strength. Furthermore, the label problem actually becomes less of an issue. The heterogeneity problem and the divergent problem can also be translated into resources. Since we gather strength through our ability to listen, not only to researchers from other fields, but also to other actors from society, the closeness to practice can be reinterpreted as another valuable resource. The internal dependency problem ceases to be a problem. By conceptualising LIS as a research field that in some way or another is involved in a great number of key areas where important advances are made, we become a field that listens and then builds on this in order to integrate and proceed with the convergent movement.

This also addresses what we earlier called the maturity problem, we cannot compete in maturity against disciplines with centuries of academic standing. However, in this new category of being a networked research entity that tries to build on both the strength of the convergent and the divergent research identities, we can become the pioneers. We may not have maturity in that area for many years, but we will have seniority.

The informational turn

Where can the field, then, find a strong convergent turn? We would suggest the existence of a unique opportunity available to us as digitalisation and the concept of 'information' become increasingly important in research and in society. LIS is a leader in the discussion on this very difficult concept 'information'. Regardless of what kind of subfield of LIS we have been part of, it is likely that we know the general discussion and are specialised on one specific dimension of it. We have something to export and, as a remarkably divergent research field, we are in a position to export rather effectively.

The divergent research field often has the external dependency problem. Exciting and new theoretical frameworks are formulated in mature disciplines and thereafter exported. The divergent field will, typically, be sensitive to such trends and will often embrace these new ideas passionately, despite there often being a slight mismatch with the ideals of one's own subject matter.

For instance, the so-called 'cognitive viewpoint', so important in information retrieval research, was imported from a revolution in the 1960s within psychology (Miller, 2003).

LIS has a long history of studying information in a number of divergent contexts where we have learned from other, stronger disciplines, to apply a number of alternative perspectives on information: social, cognitive, technological, or economical perspective. We have learned to see information as linked to professions and globalisation. We have applied epistemology and learned to see information as a weak cousin to knowledge. This actually makes us even more resourceful in talking about information. We have a sophisticated perspective on information that no other discipline is close to. We have listened, learned and applied these various perspectives and now it is time to turn the tables.

Historically, our construction of information as a secondary aspect is produced in contexts where, indeed, a sophisticated study of information was deemed of lesser value, since information, information systems and so on were not considered important drivers of

society or societal change. Today, we would argue that the situation is completely different. There are two dimensions to this transformation and it is important to keep them apart.

First, year after year processes of digitalisation are transforming social, cultural and economic structures. People all over the world are being socialised into a digitalised life-world that dramatically changes the way that they interact with each other both in the workplace and in leisure. Palfrey and Gasser (2008) have empirically investigated what they call 'digital natives', children born and raised into a digital world that interacts with information technology in a much more fluid and integrated way than older 'digital settlers' and 'digital immigrants'.

Second, this also dramatically changes the way that researchers produce knowledge. Most obvious, this is the case in the social sciences, with new possibilities of studying human and social behaviours as they interact in networks. However, all scientific traditions are affected. Through the computers, it is possible to, with increasing sophistication, simulate natural, social and historic events.

Wouters (2007) discusses this second phenomenon as an 'informational turn'. Building on such an idea, we can identify a fundamental shift in the way that LIS relates to other disciplines. Once we realise that in today's digitalised society it is quite possible to see information as a major societal driver, we can then, with a long experience of applying a multitude of perspectives on information, take the role of a discipline that exports rather than imports a strong theoretical framework.

We can see this as a possible parallel to the development that followed the cognitive revolution within psychology. Many disciplines were at the time involved in a start up process of understanding human cognition. There was a need for this type of support in order to understand how humans interact with artefacts as well as each other. Today, many disciplines are in a similar early position when understanding information and need more of a foundation.

There are huge possibilities for LIS here, but it would hardly make an impact without improved self-confidence and coordinated strategic work.

The weak convergent turn: Meta-studies and self-reflection

As mentioned earlier, Frickel & Gross (2005) emphasise the construction of collective identities as crucial for framing the development of research fields; and Whitley (2000) links definitions of the fields to the reputational autonomy. How the fields are defined is dependent on a variety of factors, such as methodological or epistemological positions, as well as how the analyses for making the definitions are produced. These aspects reflect different dimensions of an inability to reach a consensus on the nature and identity of the field, raising questions on the field's ability to define itself in relation to other research fields.

One feature of LIS is a long-term interest in meta-studies, reflecting decades of discussions on the nature and purpose of the field. It can be argued that, with the exception of the research field of science studies, no discipline can be said to be more concerned with self-reflection. A probable explanation is that LIS houses a number of vital resources for being interested in the practice of research, i.e. the subdisciplines of bibliometrics, scientometrics and scholarly communication. In addition, LIS has a long-standing interest in research libraries as supporting new forms of accessing and optimising research practices. LIS researchers have increasingly produced sophisticated insights into the character of research work. Furthermore, the epistemological discussion on knowledge touches on the similarities between information and knowledge and the many difficulties in defining these. Compare for instance the complexities of the definition on information by McCreadie and Rice (1999) with the discussion on types of different knowledge in de Jong and Ferguson-Hessler (1996). In order to understand the production of information we also need to understand knowledge.

As has been argued above, the development of a tradition of self-reflection and meta-studies can be seen as a weak convergent turn. In other words, these discussions serve to

heighten a common awareness of the subject, its history, conventions, essential tensions, debates/controversies and common core ideas/concepts.

While there is an evident convergent function here, it is not a strong turn in that direction. Reflection does not serve as a driver in itself, but the self-reflection, the historical awareness and insights into what is the state of the art as well as how it was created, serve as a foundation for a possible strong convergent turn. This is particularly so, since the kind of convergent turn that we have been arguing for in this article is one that is coordinated with, and indeed highly tuned into, the field as continuously divergent. This is a convergent turn that is cognisant and appreciative of the field as a fragmented adhocracy.

The strong meta-theoretical and self reflective tradition is the final piece in this jigsaw puzzle. We, therefore, argue that LIS really has all the necessary resources in order to coordinate a field that is both divergent and convergent at the same time. Furthermore, this field will be able to promote an informational turn in other disciplines and export rather than import theoretical frameworks, as can already be seen in citations to LIS research coming from e.g. computer science and management studies (Cronin and Meho, 2008).

Nevertheless, the difficulty of the task outlined here, as a strategic normative project, could, and should, not be underestimated. If the notion of a unified LIS field perseveres in coordination with fragmentation, we have a vast amount of varied research areas requiring different modes of interpretation and analysis. In addition, as long as the connection to the field of practice is maintained there will be a need for analyzing a plethora of social, cultural, organizational and information related processes.

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