RESEARCH MANAGEMENT STRATEGY

– recommendations for the Architecture and Design Section of
the Department of Architecture, Design and Media Technology

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Thesis · HDO
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"Management is design and design is pedagogy"

– Peter Hanke, conductor and management
researcher at Copenhagen Business School

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1 Introduction

The introduction of performance measurement and performance based budgeting in recent years calls in a new era for Danish Universities which call for new strategies to increase the research production while still maintaining high quality research and a meaningful work life for researchers. While strategic thinking has a long history in the corporate world, it is seldom practiced in research departments of Danish public universities. Adopting a strategic approach to research may even be considered to be malicious to the quality of research and undermining the right of researchers to guide their research interests solely by concerns internal to the research itself and the research strengths and interests of the individual researcher.

As performance measurement and performance based budgeting seems to have come to stay, there is a need to consider how the quality of research and the work life of researcher can be maintained under these new circumstances. Or even better, how they can potentially be used as a lever to raise the quality.

With a below average production of research, the Architecture and Design section of the Department of Architecture, Design and Media Technology at Aalborg University is particularly threatened by these new budgeting systems and the need for a strategic change is therefore all the more important.

1.1 Structure of the Thesis

Rather than offering a traditional university report format, this thesis is structured to first give an idea of the findings and only next to document the work. Hence, the first three sections give the **Aim and scope**, **Background** and **Recommendations** of the study. Only then, the Methodology is described and the theoretical and empirical findings are presented in the **Strategy Points** section, followed by a **Discussion**, **Conclusion** and **Perspectives.**

The reason for this structure is twofold. First, it allows the academic reader to get an idea of where the thesis is heading, as the recommendations can be read as a summary of the findings. It is the author's belief that this will make the thesis a more interesting read, as the relevance of the chosen methodology, as well as of the theoretical and empirical reflections can be measured against the results.

Second, it allows the professional reader to go straight to the recommendations without having to go through all the 'intermediary results'. As such, the first part of this work serves a consultancy report, while the whole serves as a thesis. In this way, the work and the way it is presented should be more relevant and engaging to both readerships.

1.2 Some Central Concepts

For the Danish State universities (and other public research institutions), a performance measurement system, the **BFI**, has recently been introduced to measure

the research output from university departments. The BFI – the Bibliometrical Research Indicator – calculates points for each journal article, book chapter, etc., published by each researcher, according to specific criteria. The number of points generated by each university determine a share of their research budgets. At Aalborg University, this funding model is trickled down on the department level so that a share of the departments' budgets is determined by the number of points generated by publications made by the department employees.

Whether a source of publication (journal, book publisher, research conference proceedings) is included in the BFI is determined by the presence of **Peer review**. The BFI is reviewed annually. While all publications which are recognised by the BFI are subject to peer review, not all peer reviewed publications are necessarily recognised by the BFI. This is the case, partly because the BFI by matter of definition is work in progress, as new sources of peer reviewed publication continuously emerge, and partly because some sources, such as many conferences, only exist for a limited period of time. Hence, a publication can potentially be peer reviewed – and thus count as research – without necessarily generating BFI points. Peer review is generally more strict for journals than for conferences and some book publications.

Apart from funds generated on the basis of the BFI, university department budgets are based on mainly two sources of income, Basic funds and external funds. **Basic funds** are generated through teaching. This means that the more teaching a department produces, the higher its income. The basic funds are scaled to cover not only teaching but also basic research in a ratio of 2:1. This means that without any other funding, researchers may spend ⅓ of their time on research. However, basic funds only allow for a minimal budget for travels, equipment, or other subsidiary expenses.

Therefore, research departments are dependent on additional funding whenever larger research budgets are needed. To this end, researchers and research units may apply for research grants from various foundations and other research funding bodies. Such grants, when obtained, are referred to as **External funds**. For each amount of external funds which are obtained, a 40% overhead is calculated in order to allow for the coverage of administrative and operational costs within the department and university administrations.

1.3 Notes About the Author

With a masters degree (1993) and a PhD (2003) in architecture and urban design from the Aarhus School of Architecture and six years of architectural practice in Germany and Denmark, I have been employed as an assistant and associate professor at the Department of Architecture and Design (merged in to the Department of Architecture, Design and Media Technology in 2010) since 2002. In 2008-10 I was the head of the Architecture & Design Programme, the teaching programme in which most of the academic staff of the Architecture and Design section of the Department

of Architecture, Design and Media Technology do their teaching. As of 2010 I am a member of the national advisory group for architecture, design, product innovation and urban planning of the Bibliometrical Research Indicator (BFI) which is managed by the Danish Agency for Science, Technology and Innovation.

My nine years of employment with the department has given me a thorough first hand insight into the culture and organisational structure of the department, and acquaintance with a good many of my department colleagues. My two years as head of programme has given me considerable experience experience with the managerial challenges which pertain to this context. Partly through the day-to-day task of running a teaching programme of some 600 students and a large teaching staff including employees from my own department as well as from other departments involved in the programme, and partly through a close collaboration with the head of the (then) Department of Architecture and Design as the boss of the majority of the teaching staff contributing to the programme.

2. Aim and Scope

The aim of this thesis is to develop recommendations for a research strategy for the Architecture and Design section (AD section) of the Department of Architecture, Design and Media Technology (AD:MT) at Aalborg University. These recommendations should be designed on the basis of a general, theoretical understanding of how organisations work and particularly how strategies can be put to use to improve the performance of organisations. Furthermore, they should be designed to fit the specific context of AD:MT, both as research department within a Danish State university in general and as a particular department with a particular history, culture, and particular strengths and weaknesses.

While the Department of Architecture, Design and Media Technology has both an architecture and design section and a media technology section, only the former is considered in the context of this thesis. Furthermore, as the department gets its income from both research and teaching, only strategies to improve and increase research have been considered.

There are three reasons for this twofold limitation to the work. The first is capacity. The author's knowledge, time and resources are not unlimited. AD:MT is a young department, formed by the recent merger of two previous departments, the Department of Architecture and Design and the Department of Media Technology. Currently the two old departments are still located in different campuses and largely operate independently of each other. Looking into both sections would imply engaging with two different research cultures and possibly different sets of problems which would exceed the capacity of this study and possibly lead to more vague and blurry results.

The second is relevance. Although teaching accounts for a large proportion of the section's activities, it has been excluded from this study. First, analysing teaching in a strategic perspective would expand the study beyond its capacity as it would involve another set of issues particular to teaching. Second, teaching has not been made subject to performance measurement in the same way as research has it. Furthermore, the strategic challenge for teaching has to do primarily with budget cuts per student capita which require different strategic actions than the strategic challenges for research. Finally, although teaching and research are interlinked in the operations of the department, strategic research management can still be meaningfully considered in isolation.

The third is pragmatism. Strategic thinking on the departmental level is not a strong tradition within the department. On the contrary, researchers enjoy a very large degree of individual freedom, topically, methodologically and organisationally. This is a strong culture. Rather than formulating a grand research strateg y for the entire department, a more incremental approach might therefore prove more beneficial. With an incremental approach, experiences may be harvested, changes to the original

strategy may be made, and a better platform for the implementation of the full strategy may be established.

3. Background

In Denmark as in many other developed countries, there is a new rhetoric in the political debate in recent years, which focuses on the utilitarian aspects of the provision of public goods. There is a raised attention towards "how taxpayers' money are spent". Therefore, the idea has evolved that the performance of public services, from nursing schools to senior services, must be measured, so that the politicians may more easily justify spending – or spending cuts – for various services. In this view lies also the idea, that rewards must be given for good performance while sanctions must be imposed for bad performance.

For the Danish state universities (and other public research institutions), the implications of this is that a new performance measurement system, the BFI, has been introduced to measure the research output from university departments. The BFI – the Bibliometrical Research Indicator – calculates points for each journal article, book chapter, etc., published by each researcher, according to specific criteria.1 Also, in line with the idea that performance should be linked to rewards and sanctions, the number of points generated by each university will determine an increasing share of their research budgets.

At Aalborg University, this funding model is trickled down on the department level. This means that an increasing share of the departments' budgets will be determined by the number of points generated by publications made by the department employees. Framed within the terminology of strategic management, this is an environmental change compare to only a few years ago. And due to this new link between publications and budgets, departments now have a strategic interest in increasing their turnover of publications.

To this end, it could seem relevant to introduce strategic management. However, the new link between publications and budgets is only one among a number of reasons why strategic management might be a good idea. This direct focus on financial means as a strategic aim and purpose of their activities may suffer some reluctance among academics, and it may therefore be difficult to implement in the context of a university department. Seen in a wider perspective however, more publications is not just linked to better budgets, but also to a number of other aspects which are important, both to the individual researchers and to a research organisation.

The quality and number of publications which a researcher has made is an indication of her importance in her field of research, and thus of her standing among her peers in the field. Therefore, more and better publications are likely to increase the interest of a researcher's environment in her, and thus in the opportunities she may get. Opportunities may be requests to do peer reviews or keynotes, invitations to sit on various boards and committees or to collaborate on joint research projects, and to acquire research funding and awards.

This in turn, may raise the attention towards the department in which the researcher is working and make it more attractive for other good researcher to work in the department, which in turn may improve the department's reputation even more. A better reputation means better media coverage which may lead to more students. And more students lead to higher budgets and more job openings for academics. And the department may grow, not just qualitatively but also quantitatively and lead to the formation of a better and bigger research environment.

But all these things may not happen without a deliberate and well-conceived strategy. This – in a much wider sense – is why strategic management is relevant to consider in the context of a university department. It may be claimed then, that what may at first glance appear to be a misconceived attempt to measure the performance of university researchers may instead be brought to work as a lever for a new course for the department's future, as well as for the future of each individual researcher.

3.1 Environmental Analysis

In corporate strategic management, an important element in is to do an environmental analysis in order to identify potential markets and competition (Lynch 2009, Crossan, Fry & Killing 2004). In the corporate world, a possible conclusion from this analysis could be to redefine the aim and scope of the corporation and to enter new markets or define new products. In the case of a university, the market can be defined as the consumers of research and teaching, and the competition can be defined as other universities and research organisations.

There is little scope however, to redefine the aim and scope of a university. Unlike private corporations, universities are providers of public goods, education and research, and by their definition, they would no longer be universities, if this aim and scope was changed. This does not mean however, that there cannot be collateral activities (such as consultancy or outreach activities, etc.) but they would always be subsidiary (which is why such activities are not considered in this study).

Academic research in general has no direct consumer. However, it is valued in a number of ways, first, by other researchers such as peer reviewers, and by external funding bodies such as research councils. While the latter directly influences the revenue in the form of research grants, the former only indirectly influence the revenue, as publications may trigger funding from other sources. Second, research publications may be quoted by other researchers. This may lead to prominence which in turn may give better access to funding.

The definition of research is also relatively well-defined and stable. Research, essentially, is what peers acknowledge as research. This acknowledgement is expressed through acceptance of research results for publication by journals, publishers and conferences. Criteria for acceptance are defined by the research culture and may vary significantly from one research field to another. Research cultures may change over

time, but essentially it is not up to the individual research institution or department to define the criteria.

In a strategic perspective, the competitors can be defined at three levels. On the societal level, research competes with other economic sectors for its share of the overall economy. Within the research world, each field of research competes with other fields of research over their shares of the total research economy. And within each field of research, research departments and institutions compete with other research departments and institutions over the distribution of funding for their particular field of research.

There is very little a research department can do to directly influence competition on the societal and research world levels. A research department can at best contribute to the discourses at these levels and hope that over time this will favour its particular field. On the research world level, one such discourse concerns the definition of performance measurement methods which may reflect some research cultures more than others and hence prioritise some types of research over others.

On the level of particular fields of research, strategic advantage over competitors is achieved first and foremost by producing better research for the reasons explained above. In conclusion, the benefits of focusing on the environment are limited in a strategic research management perspective. Therefore, competitive advantage must be achieved through focusing on the internal resources.

3.2 Resources

A university department is a professional organisation. It produces highly specialised services with little scope for standardisation as each task is unique. The most important resource therefore, is the research employees. This means that the most important challenge for a university department is to attract the best possible academics and to keep the ones it has. In order to do so, it must offer the most attractive work conditions possible for its researchers.

Ultimately, successful professionals are likely to have high requirements to their work conditions. If these are not met, there is a risk that they might leave for a better position, which would cause a blow to the department, as the knowledge and performance capacity of the department resides with the professional (Løwendahl, 2005).

On the other hand, less successful professionals are unlikely to have high requirements to their work environment, and hence will accept less attractive work conditions, as they do not have an alternative. In principle this is even more true in a university environment than in private firms for a number of reasons:

1. Universities have a sort of monopoly status in that academics are likely to have to move geographically in order to change to another, similar position. This is particularly true outside of larger urban areas where there might be only one university with a department in the academic's professional field.

2. Very often therefore, only those willing – and able – to move geographically in order to make a career move will have a real alternative to their current position, as the only alternative would otherwise be to leave academia.

3. The fact that most senior academics in Denmark hold permanent positions which it is very unlikely to get sacked from, means that for less ambitious academics there is a very small incentive to improve their performance.

3.3 The Architecture and Design Section in a Strategic Perspective

This section profiles the resources of the AD section of the AD:MT in terms of its researchers and their research production. The profile is based in part on statistics from the PURE and VBN databases. Due to ambiguities between different database readings and practical difficulties in acquiring comparable database readings and the fact that some statistics have only been acquired for one year, the information which is presented here is only indicative.

3.3.1 The Academic Staff

AD has a total full-time staff of 56 employees, distributed across academic staff (line staff) and secretarial, technical and academic support staff with an approximate ratio of line to support staff of 3:1.

The history and previous success of the AD section is based on the architecture and design teaching programme. From its inception in 1997, the programme quickly grew to become the third largest teaching programme at Aalborg University with a present student base of approximately 600 students. For most of the section's history this has led to a prioritisation of teaching over research, both among the individual academic staff members and in the recruiting policies for the section (formerly department). The academic staff at AD can therefore be described within three categories:

1. Educators. Faculty who identify themselves as teachers rather than researchers, who typically do not have a PhD degree and whose research production is none or second to none.

2. Educator-researchers. Faculty who have done research but whose teaching is important to their professional identity. Their research is largely defined by their field of teaching or springs from it. They may or may not have a PhD degree, but do generally not have a strong research identity and have a modest research production.

3. Researchers. Faculty who have a continuous research production and publish internationally in peer reviewed books and/or journals.

3.3.2 Publications

In 2009, the AD researchers published a total of 100 publications in the form of journal articles, book chapters, conference articles, PhD dissertations, books, and other publications (figure). The vast majority of publications consisted of conference articles and other publications which represent approximately a third of the total number of publications respectively. While some conference articles may release points if a conference proceedings is published with a recognised publisher, publications listed as 'other' do not release points.

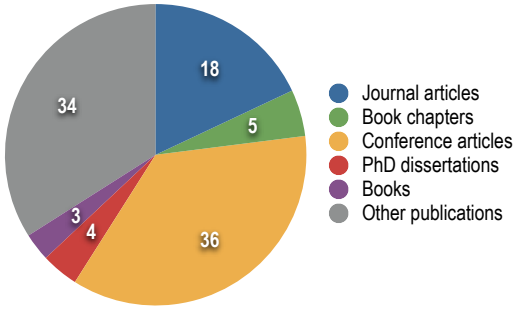

Fig. 3.1: Number of publications by publication type, 2009. Source: PURE, extracted by Malene Knudsen, the VBN editorial office, 2010. Graphics: The author

In a strategic perspective, it is important how a research text is published, as different types of publications release different numbers of points. The following points are released for Group 1 and 2 publications for each publication type:

Publication type	Group 1	Group 2
Books (scientific monographs)	6	6
Journal articles	1	3
Book chapters (articles in scientific anthologies)	0,75	0,75
PhD dissertations	2	–
Doctoral dissertations	5	–
Patents	1	–

Source: The VBN editorial office, 2010

In this context, conference articles are not listed separately but count as either journal articles or book chapters depending on how they are published, provided they are published by a recognised journal or publisher. Currently, book publishers are not ranked into Group 1 and 2, but they will be so in a matter of time. PhD and doctoral dissertations and patents by definition always release points and cannot be ranked.

Due to the different number of points released by the different publication types the number of points generated for each publication type is not proportional to the number of publications for each publication type. This becomes very clear when

comparing the previous pie chart to the following, which shows the number of points which the 100 publications of 2009 generated by type of publication (figure).

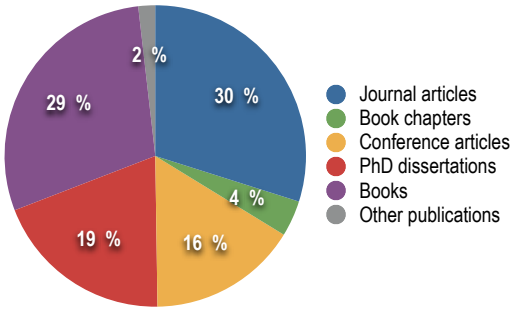

Fig. 3.2: Point by publication type, 2009. Source: PURE, extracted by Malene Knudsen, the VBN editorial office, 2010. Graphics: The author

While conference articles and other articles make up 70% of all publications by number, they make up a mere 18% of all the generated points. Inversely, journal articles make up 18% in numbers and 30% in points. In relation to articles and chapters, entire PhD dissertations and books represent a lot of work pr. publication. Therefore, PhD dissertations and books count much more in points than in numbers.

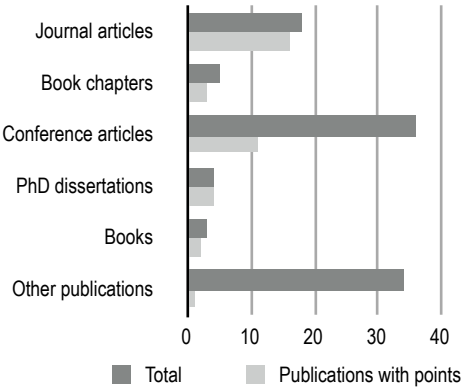

Figure 3.3: Publications total and publications with points by publication type, 2009. Source: PURE, extracted by Malene Knudsen, the VBN editorial office, 2010. Graphics: The author

In terms of generating points, it is three times more efficient to publish journal articles than conference articles, as the ratio of numbers to points is 1,5 for journal articles and 0,5 for conference articles. A third of all publications ('other') are notoriously inefficient. Although it is difficult to estimate, it is probable that PhD dissertations and books also require relatively more work per point generated than journal articles. The horizontal bar chart above shows the relation between number of publications and number of points for each publication type (figure).

If the 2009 data is representative of a longer time span, it seems as a changed publication pattern could significantly improve the departments performance. On the one hand, a third of all publications generate no point, and another third, conference articles, are very inefficient in doing so. It may also cause some worry, that almost half

of all points are generated by PhD dissertations and books. Not only is it probably hard earned points but it is also very volatile, as a small variation of the number of published PhD dissertations and books will result in a large variation in the number of points generated.

The BFI will increase its importance int the coming year. Hence, the share of the university budgets which is based on the BFI will raise from 10% in 2010 to 25% in 2012. This means that the share based on the BFI is expected to outgrow the share generated from external funding. In other words, the BFI based share of funding other than basic funding (education and PhDs) is expected to grow from 22% to 55% in only three years. As these funds make up the actual research budgets when basic operation expenses are paid (salaries, rent, inventory, etc.), this development is likely to be critical for the research scope in the very near future.

3.3.3 Journal Publications

In the five year period 2006-10, the AD researchers published a total of 58 journal articles (figure) or approximately 0,3 journal articles pr. academic pr. year. Some 70% of these articles were published in journals on the BFI list, which means that they count in the performance measurement and generate revenue, while the remaining 30% were published in journals which do not qualify for inclusion in the BFI list. Although it is difficult to extract exact numbers, AD seems to have a publication frequency which is considerably below the university average.

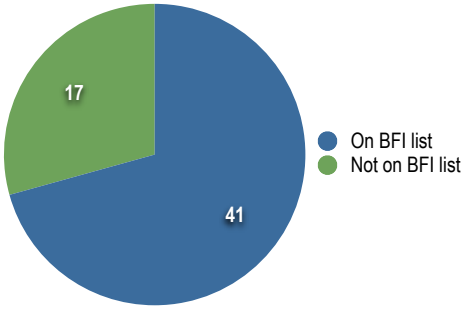

Fig. 3.4: Journal publication pattern, 2006-10. Source: VBN and BFI, 2010. Adapted by the author. Graphics: The author

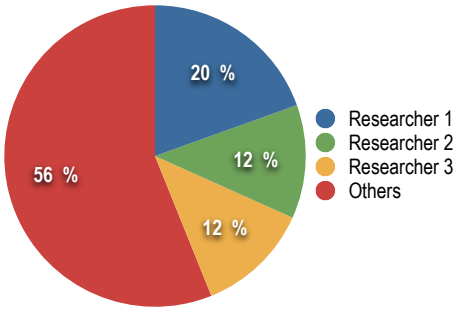

Fig. 3.5: Articles in listed journals by researcher, 2006-10. Source: VBN and BFI, 2010. Adapted by the author. Graphics: The author

The journal publications of 2006-10 are very unevenly distributed among the academic staff. Thus, the top 4 most publishing researchers authored nearly half of all the articles (figure).

Similar disproportions appears in the distribution among journals. Among the 41 articles published in listed journals, 40% appeared in only 2 journals (figure).

The journals in the BFI list are distributed into 67 research areas which in turn, are ranked into two groups, Group 1 and 2. Group 2 comprises the top 20% internationally acclaimed journals while Group 1 comprises the remaining 80% of the journals. The 20/80 share is based on the turnover of Danish articles which are published in any group of journals. In order to encourage publication in high ranking journals, articles in Group 1 journals release 1 point while articles in Group 2 journals release 3 points.

At the Aalborg University, each point releases DKK 17.000 in the 2011 budget. Hence, while a Group 1 journal article releases DKK 17.000, a Group 2 journal article releases DKK 51.000.

One of the two journals which accounts for 40% of the total number of articles in listed journals in 2006-10, Arkitekten, is currently listed as a Group 1 journal. However, it does not comply with the formal criteria to be listed in the BFI, as it does not have peer review. The reason why this is possible is that the whole BFI system is in its inception and the list must therefore be considered a gross list which is to be refined. It must therefore be anticipated, that this journal will exit the BFI list in a matter of time.

The other journal, Nordic Journal of Architectural Research, currently listed as a Group 2 journal. However, it does not comply with the formal criteria to be listed as a Group 2 journal in the BFI, as it does not have an international review committee outside the Nordic countries and hardly has any contributions from outside the Nordic countries either. Furthermore, as a non-commercial journal run by peers and hosted at Nordic universities on a rotation basis, its recent publications have been infrequent and its immediate future is uncertain, due to disagreement among the cooperation partners.

3.3.4 Summary

A raised focus on performance measurement and incentives means that the department budget share based on point generating publications will more than double from 10% to 25% during 2010-12 (or from 22% to 55% of the actual research budget, as explained above). As the AD section seems to have a publication frequency below the university average, this is likely to strike AD:MT harder than other university departments.

In addition to this, the research capacity of the AD academic staff is very varied, from staff who hardly do any research to staff who have a standard academic publication frequency. When looking at the AD publication pattern, much effort is waisted on publications which do not generate points or publication types for which points are hard-earned.

Half of the points are generated from PhD dissertations and books (provided the 2009 data is representative), This makes the department vulnerable to small variations in the publication frequency for these types of publications.

For the most efficient type of publications, journal articles, the publication pattern is very asymmetrical, both in terms of publications per researcher and per journal. The fact that the future presence of the two journals with the highest number of AD contributions is uncertain means that the department's journal publication performance is seriously at stake.

In sum, practically all indicators show that AD:MT is facing significant challenges in the near future unless action is taken to improve its research resources and performance.

4. Recommendations

This chapter presents the recommendations for a research strategy for the architecture and design section (AD) of the Department of Architecture, Design and Media Technology (AD:MT) at Aalborg University. As such, it anticipates – or rather intertwines with – the conclusions of the thesis. It may therefore be read as a summary, as a basis for the appropriateness of the adopted methodology, theory and discussion, or, for those primarily instrumentally interested in the recommendations for the development of a research strategy as exactly that.

The recommendations take their point of departure in a matrix containing ten focus areas relating to a) three organisational scales: management, organisation and employee, and b) three fields within management theory: human resources, organisation and strategy (fig. 4.1).

Fig. 4.1: Areas and scales of investigation. Graphics: The author

The hatched lines of the figure indicate that each focus area does not belong unequivocally to one particular scale or field. Hence, organisational scales and theoretical fields are offered primarily as structuring devices for the recommendations presented here (horizontal reading) and for the research presented in the research section of this thesis (vertical reading). For pragmatic reasons, competence building and learning – flip sides of the same coin – are treated as one. The same is true for strategy and change, which is presented as one in the strategic management section.

The hypothesis of these recommendations is that in order for a research strategy for AD:MT to work, intervention must be considered for all ten focus areas. As such, will be presented in the following as strategy elements. While some elements may be more important than others, the success of a strategy developed on the basis of these recommendation relies on the ability to consider and implement all ten strategy elements in context of one another.

b

In order to be able to formulate a meaningful strategy, the department must be clear about its mission, vision and values (Crossan, Fry & Killing, 2004). This may seem

obvious, as it may seem beyond debate what those would be for a university research department. However, in a situation where funding and finances have gained increased attention, a bit of reflection is relevant.

As a university department, AD:MT's mission is to do teaching and research to the benefit of society and according to international standards. How this mission is pursued in a short to medium perspective – the vision – is relative to the department's current performance in relation to the vision, as well as to the values which department formulates for itself.

However, there is a big difference between pursuing economic sustainability/growth and pursuing research sustainability/growth. This can be explained by way of an example:

Researcher A and researcher B both work in the same department. Researcher A never got into applying for external funding for her research, but the nature of her research allows her to do it on a modest budget, and she manages to publish 2-3 peer reviewed articles per year.

Researcher B knows where, how and when to apply for research funding and has received several research grants. However, she is not so productive in terms of writing as researcher A, and most of her research appears in non-reviewed professional journals.

Both these types of researchers can be found within AD:MT.

Now the question is: Whose research pattern is most beneficial for the department?

If the value of the department is to have the highest possible turnover in financial terms, the research pattern of Researcher B is most beneficial, and Researcher A should be encouraged to change her behaviour towards generating more external funding on the potential expense of her turnover of peer reviewed publications.

However, if the value of the department is to have the highest possible turnover in terms of peer reviewed publications, the research pattern of Researcher A is most beneficial, and Researcher B should be encouraged to change her behaviour towards publishing more peer reviewed publications on the potential expense of generating external funding.

Both strategies imply financial rewards. External funding means better budgets, and points for peer reviewed publications also generate funding. (In fact the projected income in the AD:MT 2011 budget is DKK 1.31 mill. of external funding and DKK 1.29 mill. for publication points, or app. 4% of the total budget each (n.n., s.d.).)

But only the strategy of Researcher A is explicitly targeted at producing research. In a situation where the department is forced to focus more on generating money, the B approach may seem more strategic than the A approach. However, there is a risk that the actual purpose of the department, to do research to the benefit of society and according to international standards, may be lost in the equation.

While the mission of the department may seem obvious at first, it is important to manifest that the value is to publish peer reviewed articles, rather than to generate the highest possible turnover of external funding, as this should be only a means to publish more research.

Having cleared the mission and the values of the department, the purpose of formulating a vision, is to pin down attainable goals for the near to medium future which can be reached by means of a strategy. According to the above argument, as an example, a wrong vision would be to double the turnover of external funding within a 5 year period. A right vision would be to double the turnover of peer reviewed articles.

Recommendation for mission, vision and values

The mission (universal aim) of the department is defined externally as that of doing teaching and research to the benefit of society and according to international standards.

The vision (short to medium aim) of the department should be to double a) the turnover of peer reviewed publications to DKK 3M annually (measured in by income generated from BFI points) and b) the turnover of external funding to DKK 3M annually (measured by income from research grants) 2013 (over a period of 2 years).

The value of the department should be to generate high quality research. Generating funds is a means to this end. In practice this means that in case of conflict between the two, high quality research should be prioritised over funding.

NOTE: The aimed amounts set in the vision can be set differently, but must be set.

4.2 Description of Strategy Elements

In order for a research strategy to be operational, it must include considerations about who does what, why, where, when and how. The strategy elements listed in this chapter are organised according to three scales, management level, organisation level and employee level. Elements listed at the management level must be implemented by the department head/research council. Elements at the organisation level must be implemented on the interpersonal or organisation level – typically by section or team leaders, while elements at the employee level must be implemented individually by each employee.

While some points pertain to what is referred to in management theory as human resources (motivation, incentives and rewards; team building; and competence building), others pertain to organisational theory (control systems; culture; change; and learning), and yet others pertain to strategy (strategy, LEAN, network).

4.3 Management Level

The management level of organisations is where the formal executive power lies. Yet, while the management has the power to make decisions, it does not have the capacity to carry out the actual implementation of those decisions. This needs to be done at other organisational levels or by support staff. Hence, recommendations which pertain to the management level primarily address the issue of which decisions should be made. But as such decisions will inherently influence other parts of the organisation (otherwise they would be pointless), this should be reflected in the nature of the given recommendations.

4.3.1 Strategic Management

An organisational strategy is a means to reach from a present, undesired state to a future desired state of performance. In organisations, strategies are typically needed when environmental changes render existing performance inadequate for meeting new demands. In order for strategies to work, they must be more than words on paper. They must be more than statements of intention. Or agreements that something must be done.

A strategy is strategy only if it is clear about long and short to intermediate goals and their underlying values, defines a road map of who must do what, where, when and how in order to achieve these goals, and devises unambiguous ways of measuring goal achievement and monitoring itself as a strategy.

In fair conditions where performance is well aligned with demands, an organisation may not need a strategy but can rely on incremental adjustment. In change conditions where performance is moderately unaligned with demands, developing a strategy is advisable in order to avoid deterioration. But in stormy conditions where performance is seriously unaligned with demands, a strategy is mandatory in order to salvage the organisation.

In the present situation with new budgeting criteria based on research output and external funding for research, the AD section of AD:MT with its strengths in teaching and weaknesses in research must be considered moderately to seriously unaligned with its environment. It is therefore advisable, if not mandatory, in order to realign the sections performance with the demands.

For some organisations a preferred strategy might be to change their field of activity (or market) rather than trying to align with new demands in their existing fields of activity. For AD:MT as a university research department, its mission is set externally

by the State as that of doing teaching and research to the benefit of society and according to international standards, Therefore, changing the field of activity is not an option for AD:MT (even though some auxiliary activities such as life long learning or consulting might be included in its scope of activities).

Hence, a strategy for the AD section of AD:MT must be oriented towards improving its performance in generating research and acquiring external funding for research. The design of such a strategy involves a number of different steps. First, present strengths and weaknesses must be identified. Initiatives to improve the department's performance must be designed. The necessary resources must be identified and allocated, and so must the key personnel to carry out the different tasks which the strategy involves. Finally, the strategy must be implemented, monitored and possibly revised according to monitoring feedback.

In short, adopting a strategy might be necessary but not necessarily easy or something which happens fast. It demands dedication and endurance, not just by the management but throughout the organisation. Poorly designed it may lead to frustration and resistance and ultimately fail. But well designed it may lead to enthusiasm and rejuvenation and success.

The key elements for success are presented and discussed in this thesis. It is important to realise, that a strategy cannot rely on only one or a few elements. The elements form a coherent tissue which gains its strength from the conjunction of all its constituent parts.

Recommendation for Strategy

The AD:MT should design and implement a strategy for the AD section in order to improve its research and external funding performance to meet current demands by its environment as expressed in new budgeting criteria based on research output and external funding for research.

The resources (people, time, money, technology and training) required to design and implement the strategy should be identified and allocated in order to carry out the strategy.

The decision to design and implement the strategy must be made and communicated by the department management who must also appoint the key people who must execute the actual strategy design and direct its implementation. These steps mark the inception of the strategy.

NOTE: Although the decision to design and implement a strategy and the appointment of key people in the process lie with the department management, it is crucial to the success of the strategy that implementation process is designed to be collaborative and inclusive of all employees.

4.3.2 Motivation, Incentives and Rewards

While most academics would claim that they perform their work simply because they like it, motivation, incentives and rewards are means to stimulate specific behaviour which is desired by the management. If the vision of the department is to double the turnover of peer reviewed publications and of external funding, this should be stimulated.

While the majority of the academic staff of AD produce peer reviewed publications, a minority does not. Out of this minority, some hold PhD degrees and should therefore be familiar with the concept. Out of the number of peer reviewed publications produced within AD, only a fraction generate BFI points. A few of the academic staff of AD continuously publish a decent number of peer reviewed articles.

It is anticipated that it is not worth the effort to try neither to stimulate those without a formal research training to start publishing peer reviewed articles, nor to stimulate those with a decent turnover to increase it even further. Hence, an increase in turnover of peer reviewed publications could be targeted by either stimulating those who might, but don't, to start publishing, or to stimulate those who do publish but whose publications do not generate BFI points to change their publication patterns.

What external funding is concerned, some of academic staff of AD has a continuous history of working on externally funded projects, some have taken part in one or a few, while yet some have never had external funding for their research. Among those who work on externally funded projects, some have applied for the funding themselves while others are part of projects which have been acquired by others, either internally within the department or the university, or externally within other universities and research institutions.

It is anticipated that it is not worth the effort to try neither to stimulate those who are not active researchers to start applying for external funding, nor to stimulate those who are already successful in continuously acquiring external funding to increase their application activities. Hence, an increase in turnover of externally funded projects could be targeted by either stimulating those who seldom or never applied for external funding to do so, or to stimulate those who are successful in acquiring external funds to include those who are not in their projects.

If researchers can see an immediate and reasonable link between their behaviour and their scope of possibilities they would be more inclined to consider their behaviour. At present, there is no transparent punishment for under-performance, nor is there any transparent reward for satisfactory performance.[1] Someone who does not publish

[1] According to the head of department, there is going to be be an increased pressure on the academic staff to generate more peer reviewed research in the future. However, this is seen as a matter of negotiation between the individual researchers and the management within the framework of the yearly staff development interview (MUS). Thus, there is no explicit and general performance targets which may guide the staff members.

or only publishes very little, in the outset, enjoys the same privileges as someone who produces BFI point generating publications. While it may be seen as unfair that colleagues who do not publish (although they are formally expected to) enjoy the teaching load as those who do (a point which has been raised by some), there are – on the other hand no incentives for those who do publish to publish through the desired publication channels (those recognised by the BFI).

The advantages to the individual researcher of acquiring external funding for research projects may seem obvious as it provides means for equipment, travels, conferences, publication, and additional research staff, etc. Yet the application for, and subsequent administration of, externally funded research projects imply that researchers must spend considerable time on administrative tasks (application and administration) instead of doing the actual research. In addition, research funds are more wisely spent, if the budget for research time is used to hire PhD students and assistants (who are paid less) rather than 'buying out' one's own research time.[2]

Applying and acquiring external funding is still attractive, however, to those who do not mind to do administrative work as it brings esteem and influence to run large projects even though the actual research is performed – at least in part – by junior staff.[3] Yet, others might prefer to spend their work time on doing actual research – as they see it as more meaningful and interesting – and may thus be less inclined to apply for external funding with all that it entails.

BFI points represent an income to the department. At present this income is directed to the department, independently of who generated the points. Inversely, publications that do not generate points represents a loss to the department to the extent that they might have done so, had the researchers' publication patterns been different.[4] This means that the department could consider motivations in the form of absence of punishment ('stick') or of actual rewards ('carrot').

At present, 18% of the 40% department overhead from externally funded projects is used for administrative purposes at department and university level. 2% transferred to an incentives pool for the project manager, while the remaining 20% is transferred to

[2] This due to the fact that buying out one's own research time means to compensate the department for not performing basic tasks which, in turn, includes both teaching and research. As basic teaching and research have a ratio of 2:1, buying out one's own research time means to dispose of one's own basic research. While this is to the benefit of the department as it allows for hiring other staff to perform the basic tasks, and thus to grow, from the perspective of the individual researcher it is experienced as a loss of research time.

[3] One may wonder how such researchers will manage to generate research publications. It is considered legitimate however, to be listed as author of research publications even if one's contribution has been to instruct and supervise the research and writing of the other authors rather than to take an active part in it.

[4] Obviously, some publications might not have the required quality to be published through channels that generate BFI points. However, the quality of such publications might be developed through rewriting.

the section where the project was acquired. It is not transparent however, how this money is used and by whom.

As there is no guarantee that funding applications are met, there is a risk that the individual researcher will spend time in vain for something which is not only in her personal interest, but also in the interest of the department. This may discourage some from spending time on writing funding applications. As for BFI points, externally funded projects represent an income to the department, just as projects which have not been acquired represent a loss to the extent, that they would have been acquired, had the researchers applied for them.

Recommendation for Motivation, Incentives and Rewards

The basic teaching load should should be raised to 1.200 hrs. p.a. with the possible reduction of 200 hrs. for the first BFI point generating publication, in order to motivate the individual researchers to publish a minimum of one BFI point generating publication p.a.[5]

The income from BFI points (currently DKK 17.000) should be shared 50/50 with the authors in order to allow researchers who focus on doing research rather than administrating projects to have a budget (albeit modest) which is relative to their performance.[6]

Researchers with no history of personally acquiring external funding should be allowed a 50 hrs. p.a. reduction of their teaching load for the first funding application in order to stimulate researchers who treasure their basic research time to spend time on fundraising.

These measures must be defined, implemented, observed, and communicated by the department management in the first phase of strategy implementation with a one year lag between performance and reward.

NOTE 1: The amounts may be set differently but should be scaled to be meaningful for the individual researchers.
NOTE 2: This recommendation must be sustained by consistent and reliable control systems to account for teaching and publication performances in order to be meaningful (see section below).
NOTE 3: This recommendation cannot stand alone but also relies on aspects of training and LEAN (see sections below).

4.3.3 Control Systems

In order to measure the performance of a strategy and to make the employees accept it, fair, meaningful and precise control systems must be available. The importance of

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[5] Researchers would then have the choice of aiming at writing or aiming at teaching in a uniform model which is transparent and equal for all, without the loss for the department of researchers under-performing.

[6] It may be held that administrative researchers would also gain from this incentive as they would be co-authors. However, as the sum would be shared among all authors, this would be of less importance to the administrative researcher.

control systems is often dismissed as the word 'control' connotes something which is undesirable in an open and respectful environment, particularly among highly educated professionals. Nothing could be more wrong.

Control systems, like the legal systems in developed countries, are means to secure that everybody gets a fair and equal treatment. If control systems are absent, malfunctioning, or used inconsistently, the way is paved for rumour and suspicion of unfair and uneven treatment, whether it is true or not. Hence, control systems, despite their bad name, are means to secure open and respectful environments, not the opposite.

Furthermore, if control systems are not working properly, they might prompt perverted behaviour, such as to make something count for something it isn't in order to give a more positive impression than can be warranted by reality. Perverted behaviour not only masks reality but also corrupts thinking in a far more pervasive manner. Driven to its extreme such behaviour is fraud; one of the few things that no research environment can tolerate to be associated with.

In the context of these recommendations, the VBN and the 'Hour bank' are the two most important control systems. The VBN (Videnbase Nordjylland) is the Aalborg University application of the national PURE system for registering research publications by type. Entries into VBN is made by the authors themselves, according to different categories, such as research or dissemination of research articles, working or conference papers, journal articles or books. These entries are subsequently validated by authorised personnel who check the entries, in part against hard copies of the publications. Likewise, readouts from the VBN is handled by authorised personnel. As such, the VBN in its systems and routines is designed to secure a high degree of reliability.

The 'Hour bank' is an informal spreadsheet-based accounting system maintained by the department administration for keeping track of the teaching loads and actual teaching of the academic staff. Entries into the Hour bank is made by the department administration, based on reports from teaching coordinators across teaching programmes. A preliminary report is sent for individual validation by the individual teaching staff, and a final report is subsequently sent to the university administration.

As there is no universal system for keeping track of actual teaching across departments and teaching programmes, and as staff from each department may teach in several teaching programmes, this is an elaborate procedure which demands considerable time and resources. As it relies on eMail communication and the distribution of spreadsheets, it is potentially error-prone. In addition it requires that the teaching staff keep individual track of their own teaching.

More importantly however, a substantial amount of teaching hours has accumulated in the system due to years of over-teaching by several of the teaching staff. As this is true for many departments within the university, the real value of this accumulated teaching is questionable, as it does not necessarily reflect the university's financial capacity to hire extra teaching capacity if the over-teaching were to be counterbalanced.

Hence, the issue of counterbalancing over-teaching has become a political and strategic issue. While some departments have simply stripped the over-teaching of their employees' accounts, others have offered to strip them in exchange of opening PhD positions within the research areas of the respective researchers. Similarly, it has given rise to unrest and personal strategies on behalf of researchers with large quantities of accumulated over-teaching.

Some researchers have stopped taking the notion of accumulated over-teaching seriously and prefer to keep over-teaching in order to protect their teaching domains, as this may be their most valuable asset after all. Others seek to quietly take on less teaching in order to counterbalance their over-teaching before it gets stripped. As a result, uncertainty and personal strategies have rendered the Hour-bank partly meaningless and unfit as a control system to stimulate desired behaviour.

Recommendation for Control Systems

Consistent readouts from VBN should be generated and published systematically on a yearly basis in order to provide a measure of the department's research production as well as to control the allocation of rewards.

A streamlined and easy-to-use system should be implemented (possibly across departments) to replace the existing 'Hour bank' in order to have a dependable way of accounting for teaching loads and actual teaching.

The actual value of the assets of this system and a uniform and transparent model for the conversion of the assets into other assets should be implemented and communicated in order avoid rumours, unrest and personal strategies to develop.

The system should be used consistently and transparently to set individual teaching loads according to performance and to control the allocation of incentives.

These measures must be defined, initiated, observed, and communicated by the department management and implemented by relevant support staff within the department and beyond in the first phase of strategy implementation.

NOTE: This recommendation cannot stand alone but also relies on aspects of culture and LEAN.

4.4 Organisation Level

The organisation level is where the day-to-day exchange and collaboration between employees (line and support staff alike) unfolds. In flat and non-hierarchical organisations, decision making power may be delegated to this level in order for those who carry out the implementation of decisions to be able to form and influence them. While decisions made on the organisational level might need to be sanctioned by the management, management need not be involved in the actual decision making. Recommendations which pertain to the organisation level primarily address areas for which distributed decision making is meaningful. Nonetheless, the implementation format should still be clear.

4.4.1 Culture and Organisation

While the culture of an organisation can be very difficult to change or even identify, it is very determining for the way things work and what colleagues expect from one another. The culture of an organisation is therefore very determining of what can be done within an organisation and how. But it may not always support the organisation's strategy. In such a case, it may therefore be necessary to change at least some aspects of the organisation culture.

Like people, organisations age with time. Young organisations establish their own culture through day to day exchange and interaction among their employees. Over time, cultural practices sediment – often unnoticed – and become increasingly manifest. In more mature organisations, long time staff tend to take the established culture for granted while new staff tend to try to decipher and adapt to the established culture. Hence, culture is sticky and difficult to pin-point, let alone to change.

Organisational culture pervades the way employees think and act. It becomes embodied in the professional's ethos and is therefore likely to be a matter of professional pride; if not, employees might become alienated with the organisation and, if alienation becomes too big, ultimately leave it. Therefore, culture is an intrinsically conservative and homogenising phenomenon.

In organisations with a good alignment with their environments, and if the environment is stable, this is a good thing. In such cases, the stabilising effect of a well-established culture provides comfort and identification with what the organisation does and is good at. Even if the environment is volatile, an organisational culture which expresses an identity of responsiveness and continuous adaption to change is a good thing. But if the organisational culture is counterproductive to necessary change, it can be detrimental to the organisation's performance.

The AD section of AD:MT is historically oriented strongly towards teaching. Due to the early success of the architecture and design programme which, in a few years, grew to become one of the biggest teaching programmes within the Aalborg University,

new staff was hired according to their teaching qualifications, rather than their research qualifications. Teaching became the main task and the nexus of the employees. And the organisational structure was designed to support teaching through 'core groups' which clustered the employees according to their teaching.

Hence, for many employees, their professional ethos is that of an educator and accordingly they spend most of their time on teaching and administrative tasks associated with teaching. Research on the other hand, for many, is something which fills up only the time left over after teaching.[7] Spending time on teaching and associated administrative tasks on the expense of research production is justified with reference to this ethos. Therefore, for many there is no upper limit to the time spent on these tasks other than the length of the day.

The AD section has a flat, non-hierarchical organisational structure. The head of department interferes minimally with the decisions made by core groups and individual researcher. This is an informal practice which has developed over the years. The core groups have chairmen who are announced by the core groups among their peers on a rotating basis. They have no job description nor any executive authority, but call and conduct core group meetings and function as communication links between the department management and the core groups.

Hence, practically all decisions about teaching are made within the core groups and are reported back to the management who simply takes note of decisions unless they are irresolvable within the groups. Decisions about research are typically made individually or among peers. Also the distribution of teaching assignments typically circumnavigate the management and is made through individual negotiations between the study board chairmen or peers who act as teaching coordinators on behalf of the study board, and the individual staff.

This non-hierarchical, teaching-oriented structure is praised by most employees as a good thing, as academics tend to prefer a high degree of independence in the definition and organisation of their work, and as the professional ethos of the AD staff has a strong bias towards teaching. However, it triggers behaviours which are counterproductive, not only to the aim of strengthening the section's research performance, but also to its teaching performance as it is.

When the organisation is structured around teaching, this becomes the genesis of all thoughts and actions. While this may be meaningful for teaching[8] as defined by the

[7] This behaviour is sustained by the fact that only teaching is subject to performance criteria as each employee has a teaching load which must be met, and which is controlled by means of the 'Hour bank'. Research on the other hand, is something which the academic staff is expected to do, yet which has no clear performance criteria in terms of research output.

[8] In fact only for specialisation specific teaching. The architecture and design programme has three specialisations, but many courses are general or foundational courses which do not relate to a specific specialisation.

teaching curriculum, it is not necessarily meaningful for research which may be formulated according to different common denominators. Furthermore, organisational groups organised around teaching tend to become static, as staff only rarely circulate between different teaching specialisations.

Static groups tend to develop their own subcultures each with their own perspectives and interests stemming from the group rather than from the organisation as a whole. Hence group activities tend to be guided by what is to the benefit of the group rather than of the entire organisation. This may lead to infighting between groups over resources, privileges and power or, for groups organised around teaching, over teaching assignments.

In combination with a non-hierarchical structure with few cross-organisational guidelines or general rules or principles, this a particular danger, as it leaves considerable room for informal power. When there are few or no formal guidelines, rules or principles, those who are most capable of exerting informal power will have the most influence. While most academics praise flat, non-hierarchical organisational structures, they are likely to be to the benefit of only few of them.

Additionally, situations like this tend to foster strategic thinking among staff, who as there is no explicit, common goals, will tend to pursue their own personal goals however they think they may reach them. In this situation, more universal concerns for the greater common good of the organisation such as its overall performance is easily sacrificed for strategic concerns about how to position oneself in the informal power game. And the ones who most devotedly enter this game are likely to win it.

Culture is best identified at the interpersonal level, which is also where cultural change must be take place. However, deliberate cultural change does not happen all by itself but must be initiated by those formally in charge of leading change. As culture is pervasive and sticky and encompasses all members of staff, it may be beneficial to hire an external consultant to assist the the cultural change process. This is particularly true if more fundamental elements of the existing culture needs to be changed.

Recommendation for Culture and Organisation

An analysis of the organisational culture and structure should be carried out – preferably assisted by an external consultant – in order to identify cultural and structural elements which are counterproductive to the goal of increasing the department's research performance.

Two elements of cultural and structural change are anticipated in this recommendation:

Middle management teams responsible for teaching and research according to explicit job descriptions should be substituted for the existing informal system of core group chairmen and

the Department research council in order to install executive power and transparency of aims and goals.

A new organisational structure of dynamic teams organised around research should be substituted for the existing core groups in order to invoke better group dynamics, less sub-optimisation and a strengthened bias towards research rather than teaching.

These measures must be prepared by an in-house change team in collaboration with an external consultant and carried out in close collaboration with the entire staff. As cultural and organisational change is a difficult endeavour, it is likely to take substantial time. It should therefore be carried out from the early to mid stages of strategy implementation throughout its completion.

NOTE: Culture and organisation have been discussed in the context of strategy and change and therefore relate to these elements. Organisation also relates to team building.

4.4.2 Team Building

Apart from its colloquial meaning of a yearly social gathering for the department staff, team building is a useful tool for the improvement of work efficiency. Rather than working by sections – i.e. the different research groups, the secretarial office, the workshop, etc. – some tasks may call for collaboration across sections, or even across departments or universities. In order to enhance the dynamics of groups of people who work together across sections and departments, deliberate team building is appropriate.

Surprisingly – particularly in a university based on teaching approach where students are asked to work in groups – teams may be less efficient than the sum of their members, had they worked alone. Team work only works, if the team is organised around real and interesting tasks, if team members feel indispensable to the team, and if the team has clear goals and the team members get feedback on their performance.

Groups who meet regularly without particular tasks and roles for the individual group members are not teams. They are merely meetings for individuals to report and adjust on individual activities. There is a high risk that such groups have a low creativity and a high degree of free-wheeling.

Teams that are really teams have specific tasks, with varying life spans according to the nature of the tasks, and their members are selected according to the relevance of their competencies to the task rather than on the basis of affiliation or duty to take turns.

Making teams work does not happen all by itself it take effort and insight to build teams that work, particularly if their members have long been in the habit of acting within groups with bad group dynamics. They will be likely to either continue their

old practices as 'we all know how to cooperate' or they might take on passive roles as free-wheelers.

Recommendation for Team Building

The thinking about collaboration among the department staff should be changed from being organised in groups of peers (whether academics or support staff) to being organised in interdisciplinary teams focusing on specific tasks in order to make teamwork more efficient and goal oriented.

As proper and well-functioning teamwork is not an innate competence nor something which necessarily emerges spontaneously, should be made to coach teams to become real teams with team functionality.

These measures must be implemented by an in-house team building team, optionally in collaboration with an external consultant or through workshops, and carried out in close collaboration with all active teams. It should be carried out from the early to mid stages of strategy implementation and continued as long as necessary.

NOTE: This recommendation relates to learning as well as to culture and organisation.

4.4.3 LEAN

Despite a bad reputation, LEAN is a means to analyse and improve procedures and routines within an organisation with aim of making it more efficient with regard to costs and results. Developed in the production industry (by Toyota) with the aim of optimising car production, it has later been applied to service industries also. In short, LEAN is about producing the highest possible value by means of the smallest possible use of resources.

Japanese in origin, LEAN is based on the two central concepts of *muda* and *kaizen*. While *muda* is defined as activities which consume resources without creating value, *kaizen* is the notion of continuous improvement. Thus, the objective of LEAN is to eliminate *muda* and introduce *kaizen*.
It may be held that LEAN is inappropriate in knowledge organisations as knowledge production, whether teaching or research as in the case of a university department, involves seemingly inefficient processes which cannot necessarily be identified as *muda*, such as experimentation or contemplation, and therefore cannot meaningfully be subject to systematic *kaizen*.

This is most likely to be true to a certain extent. However, even in knowledge organisations, much of the work which is done is routine work, such as administrative work, which can easily and ideally be subjected to LEAN thinking.

In the AD section as in any university department, administrative work is carried out not only by administrative staff, but also by academic staff. In fact no academic is likely to have worked in the department for very long without having complained about the administrative workload. Yet, as it is 'nobody's fault but the system's', no-one is inclined to optimise administrative routines. On the contrary, everyone tends to sub-optimise their own behaviour in order to cope with the load of administrative work.

A typical example of this is eMailing behaviour. In AD:MT, a weekly research digest is distributed to all members of staff by the department secretary in the format of an eMail containing other eMails on different topics of potential interest to the recipients. Each digest typically contains 15-30 eMails in seemingly no order, many of which have been forwarded and re-forwarded multiple times from various parts of the university and beyond.

While each person in this eMailing chain acts like a ping pong bat, simply sending eMails on to the next person in order to sub-optimise their own work, the end recipients end up with a soup of header texts and forwarding comments with only few chunks of real information in it, most of which might not even be relevant to them.

Subjected to LEAN this information flow could be redesigned so that the information would be sent directly to an online repository which the former recipients of disorganised eMails could consult according to their own needs through a web interface presenting the information in relevant categories. Combining multiple messages into one – the research digest – was intended to be an efficiency measure. However, the LEAN solution seems to be to eliminate the type of communication, pushing information through eMails, altogether and replace it by a different type of communication, pulling information from a website.

In a similar fashion, numerous other flows and procedures within the department could be streamlined. Also, many procedures might be eliminated altogether or taken over by other categories of staff which might be able to handle them more efficiently. While such redesign will require additional resources in the short term and might lead to extra work in some parts of the organisation, it will lead free up resources in the longer term and save resources within the organisation as a whole.

Recommendation for LEAN

LEAN should be introduced and implemented across the entire section in order to continuously streamline necessary administrative routines (kaizen) and eliminate unnecessary routines (muda).

This measure must be initiated and monitored by key responsible persons and carried out by all employees at all times. Additionally, a LEAN team might be formed for a limited period of time in order to spark the process.

4.5 Employee Level

The employee level of organisations is where the scope of decision and action lies with the individual employee. Decisions may be encouraged or even agreed with the management and action may be supported by the organisation. Hence, recommendations which pertain to the employee level primarily address issues which may strengthen the competencies of the individual employees, with the possible encouragement of the management and support of the organisation.

4.5.1 Competence Building and Learning

Due to the composition of the academic staff at the AD section, low performance in research is not only a matter of priorities but also of knowledge and competencies. Becoming better researchers is relevant to many of the academic staff, although people's strengths and weaknesses may vary significantly. Hence, competence building is needed in order for improve research performance.

Rather than passively expecting people to seek training whenever needed, a survey of training needs among the academic would provide an overview of the nature and extent of potential lack of research competencies. In addition, some competencies might be beneficial to the department's research strategy even if they may not be considered important and thus be identified by the individual researchers. In sum, this would enable a more systematic approach to competence building which might encompass both formalised training and informal learning.

Just as the sharing of knowledge and experiences about research between peers within the department can be an effective way of learning, so can the sharing of knowledge and experiences about processes and procedures between departments (or sections). Different groups and organisations develop different cultures and understandings about ways of doing things. And it can be very eye-opening and lead to major leaps to learn how other organisational cultures deal with challenges which are similar to one's own.

While some of the academic staff might lack a variety of research competencies, others might lack fundraising competencies. Depending on the nature and extent of different deficiencies, different approaches may be adopted. While some forms of training may take place outside of the department, other forms of training may be catered for in-house by colleagues or invited instructors. And while some training may take on the format of courses and workshops, other training might happen through peer coaching and self-study.

Some employees might be reluctant towards formalised training courses, either due to vanity ("I know what I'm doing" or "I'm too old to go to school") or because they find it difficult to allocate the necessary time. In such cases, more informal formats, such as peer workshops, or joint writing and literature searching which have a 'real' purpose beyond the learning purpose might be more attractive and effective.

Recommendation for Competence Building and Learning

A survey of research and research related competencies and deficiencies should be carried out in order to get an overview of training needs.

Individual training goals should be defined for all academic staff in order to strategically meet individual training needs.

A training strategy containing formalised training and informal peer coaching and learning (as appropriate and needed) should be developed in order to respond to identified lacks of research and research related competencies.

These measures must be introduced and monitored through MUS as and ongoing field of attention. Additionally, a permanent competence buliding and learning team should be formed in order to organise and facilitate both formal training and informal peer coaching and learning.

4.5.2 Network

After spending an exchange semester at NYU Law[9] some years ago, my brother concluded that the most important thing he had learnt during his stay there was that "it's not what you know – it's who you know". While all the top professors whom he studied with hopefully didn't teach in vain, his statement points to the importance of good peer networks.

Good peer networks are indispensable in research, whether formalised collaboration network or more loose interest-based networks. While some have good networks locally or in the region, others have more international networks, and while some have more loose connections, some work with others in close collaboration. Regardless of the nature of peer networks however, it is most likely that they have developed haphazardly, through accidental meetings at conferences, introductions through peers, or the like.

Networking is an important skill which should be developed and maintained. While it is important to know the literature on the topics on which one does research in order to be able to situate it, it is also important to connect to some of the authors of this literature in order to be able to develop it. And if one's research is cross-disciplinary, it may be relevant to develop contacts in other fields in order to

[9]New York University School of Law

connect to people with knowledge which does is not possessed by one self or within one's own department.

Networking can take on many levels of intensity, from using professional social media such as LinkedIn or academia.edu, to organising conferences targeting relevant research communities. Any which way, researchers should be aware of the strategic potential of networking, not only to the individual researcher, but also to the department as a research unit.

Recommendation for Networking

Employees should be encouraged to consider their personal networking strategies and to actively develop personal strategic research networks in order to situate themselves within relevant research communities.

Networking should be promoted for employees seeking to develop new research projects by supporting the participation in conferences and other events in order for them to develop new strategic networks.

Networking competencies and experiences should be discussed and shared across the department through formalised networking workshops in order to heighten the overall networking competencies within the department.

This measure must be introduced and monitored through MUS as and ongoing field of attentions. Additionally, a networking team might be formed for a limited period of time in order to introduce and share experiences with different forms of networking.

5. Methodology

In order to approach the goal of formulating recommendations for a research strategy for the Architecture and Design section of the Department of Architecture, Design and Media Technology at Aalborg University, both the theoretical and empirical enquiries of this thesis have been organised around ten focus areas relating to a) three fields within management theory: human resources, organisation and strategy, at b) three organisational scales: management, organisation and employee. This is shown in Fig. 4.1 which is shown again for the reader's convenience:

Fig. 4.1 (repeated): Areas and scales of investigation. Graphics: The author

While the recommendations presented in the previous section were organised according to a horizontal reading of figure 4.1 in order to relate to the different organisational scales which are relevant to strategy implementation, the theoretical and empirical discussions presented in this section are organised according to a vertical reading in order to relate to the different fields of management theory which frame this discussion.

A research strategy must be reflected and unfold across all scales of the organisation from the management to the individual employees. And thematically it must consider both human resources, organisational aspects, as well as strategic aspects. The selection of the specific focus ares is based, on the one hand, on my initial knowledge of the organisation and my theoretical and empirical enquiries, and on the other hand, on the components which I consider to be important in order to formulate a set of recommendations for a research strategy.

While the theoretical enquiry is literature based, the empirical enquiry is based in part on a case study and in part on a dialogue with a focus group. The case study comprised an investigation of the department's economy, current research performance and competencies, as well as aspects of motivation and cooperation among employees. Some of the early case study findings have been presented in previous work (Steinø 2010) which has formed an initial base for, and in part been reintroduced in the

context of the present work. The focus group was used as a discussion partner in order to get feedback on theoretical issues and proposed strategy elements.

5.1 Theoretical Study

The fundamental idea of this study is to investigate the potential of applying a strategic perspective founded in management theory – predominantly developed for, and applied in, the corporate world – to the public sector setting of an academic research organisation. The hypothesis is, that doing so enables a framing of academic research behaviour which offers relevant responses to the environmental change which academic research institutions in Denmark are currently facing. The aim is not to offer an alternative to traditional framings of academic research but rather to offer an additional framing, which may expand and critically examine existing idiosyncrasies.

Apart from being a study in its own right, the theoretical study has also been used to structure the empirical study in terms of thinking about problems, and to structure the recommendations in terms of thinking about solutions. Hence, a constant interplay has existed throughout the work between real world observations and theoretical framings. Initial reading has formed real world inquiries which, in turn have guided further reading.

The theoretical study has been based mainly on the literature based which has been presented and discussed during the graduate diploma course in business administration which has led up to this thesis. This literature offers a broad coverage of the discussed fields of theory. As the study covers many different fields, the literature does not represent a full review of each field. Rather, it represents what is believed to be a solid base. As such, the work can be considered an in-breadth study, rather than an in-depth study.

5.2 Case Study

The case study is based in part on statistical and other data, and in part on semi-structured open-ended interviews (Kvale 1994) with 8 academics at AD section including the head of department and the chair of the department research committee, and one researcher from the MT section of AD:MT. The statistical data presented in the background section comes from two university repositories, Videnbase Nordjylland (VBN) which is accessible through the university website, and PURE which is managed by the VBN editorial office. Information about the BFI has been accessed through the Danish Agency for Science, Technology and Innovation website. Two internal department documents, a paper on the principles of the 2011 department budget (n.n., s.d.) and a draft research strategy for AD:MT for 2010-14 (Jensen, 2010) has also been included.

The interviewees are not statistically representative for all the researchers within the architecture and design section at AD:MT, but have nonetheless been chosen for

their variety of research styles and volume, based on the author's personal knowledge, as well as for their distribution across the four subfields of research within the architecture and design section at AD:MT.[10]

Among the nine interviewees, two do not have a PhD degree, while one other only received his/her PhD degree after having worked as a researcher for over a decade and has not received any formalised research training. Three of the interviewees have held long term positions at other research institutions, while two others have been visiting other research institutions for shorter periods of time. Three of the interviewees have substantial international experience while two others have some international experience.

Both male and female researchers have been interviewed (proportional to the app. 4/1 ratio of male to female ratio of the the architecture and design section at AD:MT). Only senior faculty has been interviewed. This is not intentional but due to limits of this study, as only a limited number of interviews could be done.

In addition to the formal interviews, several informal talks an discussions have been held with different academics within the department. Informal talks with colleagues (as it were) have served the purpose of trying to understand the professional ethos, interests and concerns of the individual academics in relation to their own aspirations as well as to those of the department. With a history of over nine years of employment within the department, I have substantial inside knowledge of the organisation and acquaintance of most of its academic staff.

While informal talks may appear to be a highly unstructured and potentially biased mode of investigation, they are valuable in terms of situating general concepts and reflections within the specific context of the department and its employees. As I am highly familiar with both the individual employees and the department as an organisation, I have been able to discuss 'in context' the different issues I have raised, in the sense that I have been able to interpret responses in relation to my prior understanding of the way the department is organised and functions, as well as how my colleagues act and think.

The potential myopia and unintended bias of basing this work on informal talks is hopefully compensated through the continuous dialogue with management theory, which has been used as a framework for enquiry and discussion rather than as a methodological framework. Nonetheless, the choice of topics of investigation has been loosely guided by Lynch's analysis framework (strategic environment vs. resources and capabilities) (Lynch 2009). In relation to Crossan et al.'s Diamond-E framework (2004), the primary focus of this study has 'stayed within the diamond', focusing on internal relations, although the relation between the Diamond and the E has been presented in the background section (figure).

[10] The four subfields are architecture, digital design, industrial design and urban design.

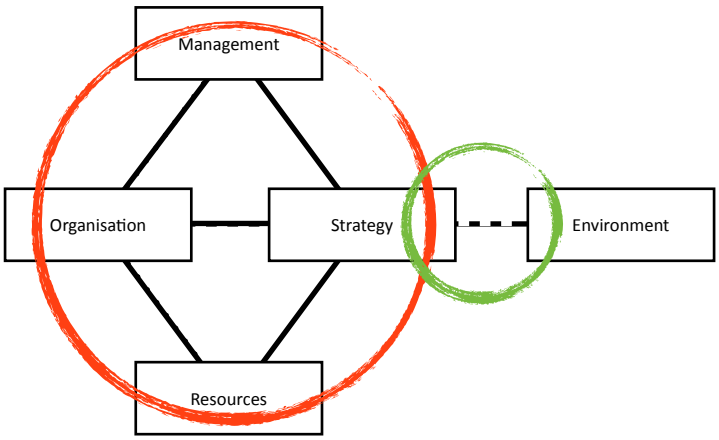

Fig. 5.1: Primary focus of research and recommendations (red) and of background section (green) respectively. Adapted by the author from Crossan et al. (2004).

5.3 Focus Group

The focus group of the study was formed by members of the Department Research Committee (DRC). The purpose of the focus group was to establish a dialogue and exchange views on the different aspects of a possible research strategy as proposed by the author. The aim of this dialogue was twofold. On the one hand, the exchange of views is important in order to corroborate the proposed strategy. On the other hand, it is important in order to prepare the reception of the strategy proposal within the department.

The initial agreement with the focus group was to meet on three occasions, first at a regular meeting of the DRC, second on a workshop to specifically discuss the study of this thesis, and third to present a preliminary outline of a strategy proposal to the DRC and to discuss the format for a wider discussion of the proposal within the department, including a presentation at an upcoming department research event. While the two former were successfully conducted, the latter was unsuccessful, in part because of delays in finishing the outline strategy proposal, and in part because the DRC had altered its plans for the research event.

6. Research

6.1 Introduction

This part of the thesis presents the theoretical discussions and empirical findings which form the basis for the recommendations presented in section 4. Rather than following the structure of organisational scales which is appropriate for offering an overview for strategy implementation, it is structured by the theoretical fields which embrace the different topics which are discussed. While human resources deals with aspects of how to support employees to unfold their full professional potential, organisation theory deals with the many processes and dynamics which unfold when more people work together towards a common goal. And strategy deals with the the way in which these processes and dynamics can be managed and led.

6.2 Human Resources

6.2.1 Motivation, Incentives and Rewards

Central to strategic management is the formulation of goals and ways of achieving them. In order to evaluate whether the organisation works towards the goals, some kind of measurement system must be implemented:

> The central idea behind performance measurement is a simple one: a professional organization formulates its envisaged performance and indicates how this performance may be measured by defining performance indicators. Once the organization has performed its tasks, it may be shown whether the envisaged performance was achieved and how much it cost.
>
> – (de Bruijn 2009)

However simple this may sound, performance measurement is not an innocent endeavour, as there are both advantages and disadvantages to it. On the one hand, performance measurement may produce some beneficial effects, as it may create transparency and learning, and allow for appraisal (internal and external) as well as sanctioning (positive and negative).

On the other hand, it may also produce some perverse effects. Performance measurement may lead to strategic behaviour (not to be confused with strategic management), it may block innovation and ambition, drive out the professional attitude, and lead to copying rather than learning. And ironically, performance measurement might veil actual performance and even lead to punishment of performance (ibid.).

According to de Bruijn, performance measurement can be designed to cater for beneficial effects and eliminate perverse effects by observing three design principles in order to maintain some important values. In order to maintain *trust* and fairness, a

principle of *interaction* must be observed, which allows the professional to influence the definition of indicators, and how performance is measured and assessed. In order to maintain *content*, a principle of *variety* must be observed, so that performance measurement is not only quantitative but allows for multiple perspectives. And finally, in order to maintain *liveliness*, performance measurement should be dynamic rather than static by focusing not only on results but also on *processes* (ibid.).

Without trust and a sense of fairness, the professional might respond to performance measurement with perverted behaviour. In order to avoid that, negotiation of conflicting managerial and professional values must be possible. Both management and professionals must feel ownership to the system, and mutual trust must be established. This calls for interaction on many different levels between the management and the professionals.

Because public service is a multi-value activity, unambiguous measurement criteria are hard to define. In order for performance measurement to maintain legitimacy, it must incorporate multiple criteria, both product definitions, performance indicators, methods of measurement and ways of forming a judgement is concerned.

While the first two design principles are concerned with output in form of products and services, the third design principle is concerned with the processes of producing the output. As the ways in which products and services are produced may change, and as new products and services may develop, performance measurement must be responsive to process dynamisms in order to continue to make sense (ibid.).

In terms of incentives, the head of the AD:MT department holds that the prospect of better research resources through external funding is in itself enough to make researchers think in terms of acquiring external funding. He has a general reservation towards using incentives, as he is worried that it would harm the team spirit. In particular, he is wary of too blatant incentives as they are seen as potentially counter-productive. He considers the AD research staff to be a special breed with a lot of creative initiative and driven by a different kind of motivation. Hence, he does not consider incentives to be consistent with the professional culture. In addition, incentives are seen as a potentially corruptive of professional ethics.

As far as the academic staff is concerned, there are different opinions about the question of incentives. Typically the senior staff reject the idea all together, mostly on ideological and ethic grounds, stating that they are not motivated by incentives but solely by their professional interests. Neither pecuniary or career related incentives, nor service and privilege related incentives resonate with this group. One academic even felt an obligation to disseminate research in a non-scholarly form in order to reach a larger professional and student audience which he/she preferred over producing research publications.

However, some mid-career researchers at the AD section, who are also among the more productive researchers, do favour the idea of some kind of incentives, either in the form of improved research funding, bonuses, or in the form of privileges such as reduced teaching obligations or availability of research or personal assistance. It is important though, that incentives are designed to stimulate cooperation among colleagues rather than competition.

Incentives are a means to stimulate productive behaviour. Blatant incentives might lead to perverted behaviour, as the head of department rightly worries. But if incentives are designed with regard to the design principles discussed in section II, they may stimulate research performance and leave the staff with a heightened feeling of appreciation of their performance.

It lies deep in the ethos of academics that what they do in their job, they do out of professional interest rather than for the monthly pay check. Not that money is unimportant, but if the pay is considered to be reasonable, other factors play a far bigger role (Løwendahl 2005).

However, total freedom and lack of peer and/or management concern for the professional's performance is in itself likely to be a demotivating factor. Not only may it invoke a feeling of "who cares anyway", but a feeling of frustration might also occur, if the potential lack of performance of colleagues is accepted without consequences.

If rewards are too small and symbolic, they will be deemed degrading. Ironically, the same might be the case if rewards are too high. However, appropriately measured rewards may be considered both welcome and instrumental, and hence worth aiming for, as the scale of the reward is deemed both decorous and functional.

At the AD section, the fear that an individualist culture might grow from introducing incentives on the expense of a collaborative culture is equally shared among staff and management. But performance measurement should be looked upon as a lever for becoming better as individuals and as a group, and not as something irrelevant which has been forced upon the department, and which might therefore be responded to with 'perverting behaviour' (De Bruijn, 2007). And if incentives are designed to stimulate collaboration and growth in performative capacity rather than just focusing on output, they may not only be motivating but also lead to an increased overall performance for the department in the long perspective.

6.2.2 Team Building

Among the advantages of organising work in organisations in teams, West (2008) list some aspects of teamwork which are particular important for knowledge organisations facing change. Teams are the best way of implementing the organisation's strategy, because the flat structure of teams makes them responsive and thus able to link the organisation's structure and strategy to a changing environment.

Teams enable organisations to learn and improve quality control. Cross-functional teams can implement radical changes because they are good at challenging existing basic assumptions. And teams foster creativity and innovation, efficiency and quality, and ultimately the involvement and commitment of employees.

Good teamwork does not happen automatically however. Team efficiency depends on three main components:

1. Task efficiency
2. The team members' job satisfaction
3. The vitality of the team

This can be discussed in the context of two variables, task reflectivity and social reflectivity (ibid.). While task reflectivity relates to the team members ability to focus on the task and what is required to solve it, social reflectivity relates to the the members ability to empathetically engage in a mutually stimulating interaction with one another.

Teams with high task reflectivity and social reflectivity will be efficient and fun, and allow for the team to have a long lifespan. Conversely, teams with low task and social reflectivity are inefficient and burdensome, and unlikely to last for very long. Between these two extremes, if only social reflectivity is high, teamwork might be cosy, but work will only progress slowly, and if only task reflectivity is high, teamwork might get done efficiently, but it will happen in a cool and unengaging atmosphere. In both cases, the team is likely to have only and intermediary lifespan (ibid.).

Then how can teamwork be designed to be efficient? According to West (2008), as far as the task at hand is concerned, it must appear genuinely interesting, not only to the team as a whole, but also to the individual team members. Each team member must have a feeling that they play an important role and that their individual contributions are indispensable and measured against explicit standards. In addition, the team must work from a clear goal definition and have a way of getting feedback on its performance.

As far as the team members are concerned, different social skills are important apart from the professional skills which are required to solve the task. Among the social skills which are important to goo teamwork is openness to new experiences, conscientiousness, extroversion, kindness, and the ability to sense and express emotional reactions. Team members, in other words, must be empathetic and ethically stable.

The psychologist and management researcher Meredith Belbin in his influential Team Role Theory lists nine team roles. While more roles can be present within one person

and while not all roles need necessarily to be filled within all teams, it provides a good framework for discussing the different personal qualities it takes to form a good team.

The *coordinator* is the appreciative yet dominant leader who is goal oriented. The *shaper* is the highly motivated, task oriented leader with a focus on winning and 'shaping' other team members. The *plant* is the intelligent and introvert, yet dominant and original idea maker. The *resource investigator* is a networker and negotiator who is good at developing the ideas of others and to explore potential. The *implementer* is practical and realistic, disciplined, conscientious and aware of external obligations. The *monitor evaluator* is serious minded, not deflected by emotional arguments, has a low need to achieve, and takes pride in never being wrong. The *team worker* is helpful, diplomatic, a good listener, has a sense of humour and thus good at averting friction. The *completer finisher* is consistent, gives attention to detail, makes a steady effort, aims to complete things thoroughly, and is uninterested in glamour and fame. And finally, *the specialist* provides knowledge and technical skills, is introverted and anxious and tends to be self-starting, dedicated and committed (referenced in ibid.).[11]

Three challenges in particular exist to successful teamwork in a university department like AD:MT. First, academics in general are concerned not only with contributing to the overall tasks of their workplace but also with nurturing their personal research careers, which they can do as they generally enjoy a large degree of freedom in defining and organising their own research. Although they are formally employed within a research department whose mission is to do teaching and research to the benefit of society and according to international standards, they often tend to think of their work as one-man businesses focused on developing their personal research.

Second, most of the academics within the AD section of AD:MT have a professional training background in Beaux-arts architecture and design programmes. Hence, they are trained to be innovative, entrepreneurial and goal oriented, and tend to have a very individualistic work style. In other words, they are very good at getting ideas and determined to carry them out.

Third, the current organisation of the AD section into static research groups has generated behavioural patterns of groupthink (West 2008, Andersen & Barlebo Rasmussen 2005), and a tendency to see other the groups as potential threats to their own domain and interests rather than as potential opportunities for cooperation and development.

Hence, the academic staff of the AD section might not see the greater good of the organisation as an attractive goal to guide their activities on the one hand, as submitting to an overarching goal of the organisation might seem to potentially compromise or even jeopardise their personal research goals. In addition, should they decide to do it, it might prove difficult to build effective and dynamic teams, as their

[11] For a more detailed description of Belkin's nine team roles, see West (2008:51-54).

personal profiles seem to incorporate aspects of Belkin's coordinator, shaper, plant and resource investigator. In fact, Belkin explicitly states that too many shapers within a team can lead to conflict, aggravation and in-fighting. Or to put it in more colloquial terms: too many chiefs and to little indians.

Implementing teamwork in the context of the AD section, however relevant it seems to be, is likely to prove demanding. On the one hand, success is contingent to the management's success in convincing the armies of one, that their personal careers will not be brought in danger by a more cooperative and team oriented approach to their work life. In fact, they might actually benefit from it, as well-functioning teamwork, by matter of definition, leads to better results the the sum of individual efforts. A well-working department, in plain words, is likely to gain more results and more recognition among academic peers at other research institutions.

On the other hand, meticulous composition of teams and careful coaching, training and monitoring of the performance of teams and team members is necessary to build good teamwork competencies among the academic staff. Also loosening up irrational animosities between researchers from different research groups is a prerequisite for making cross-disciplinary teams work.

In sum, turning the organisation from its present organisational structure of static research groups with no real tasks into a task oriented, team based organisation focused on clear goals and with conscious monitoring and feedback is going to take both time, skill, patience, and a lot of empathy.

6.2.3 Competence Building and Learning

The difference between competence building and learning is subtle. While learning refers to any process which leads to a permanent change of capacity, whether bodily, cognitive, psycho-dynamic or social, competence building is instrumental in that what is learnt can be applied to action (Larsen 2006, Wahlgren et al. 2002). As such, competence building is a subset of learning.

While both learning and competence building may take place everywhere everyday through interaction with people and processes outside the context of formalised learning courses, competence building is more likely to need to be situated in more or less formalised learning contexts in order to take place. Formalised learning contexts do not have to be 'school like' such as courses and workshops, but may take on formats such as coaching, networking and peer learning.

While courses – either external or in-house – may be relevant at times, they are not necessarily the best format for work-related competence building. On the one hand, employees may have different reasons for not wanting to take part in courses. They may feel that they do not have any learning needs, or that the training is forced onto them, or they may simply feel that they do not have the time (Larsen, 2006). In

addition, formal courses are often subject to an implementation problem, as learning acquired through a course can be difficult to implement in the work process and hence to become actual competence building (Wahlgren et al. 2002).

Thus, learning in the workplace may often be a better alternative. In-house competencies may be shared through actual work processes, eliminating problems of time and implementation. Delegation of responsibility through job enrichment such as team organisation is in itself a way to enhance learning. But also other approaches such as coaching, mentoring, peer learning, job rotation, networking groups are ways of learning in the workplace (Larsen, 2006).

The extent to which learning in the workplace is possible depends on the organisational culture. If an organisation is incapable of acknowledging its own need for development, learning can be difficult if not impossible. A typical example of this is the "paradox of success" where past successes veil the need for development in times of change. This leads to a distorted sense of reality, organisational incompetence and acquired ignorance. Some symptoms of this are an unconcerned search for consensus, inability to question the connection between organisational culture and performance, collective self-overestimation, and inability or unwillingness to learn from mistakes (ibid.).

Conversely, organisations which are capable of organisational learning will get wiser and better along with the individual employees:

> Organisational learning takes place when individuals in organisations experience a problematic situation and engage with it on behalf of the organisation. When surprising inconsistencies between the expected and actual results of actions is experienced. Such inconsistencies are met with reflection and new action which will modify the understanding of the organisation [...] and a restructuring of actions so that consistency between expectation and result can be reestablished.
>
> – Argyris & Schön, quoted in Wahlgren et al. (2002), author's translation

In organisations capable of learning, the organisational context changes when the people within this context learn something new.

The knowledge, skills and competencies which the researchers at the AD section feel that they lack differ significantly. While some senior researchers express lack of language and ICT skills, some of the mid-career researchers feel that they lack management competencies and knowledge about fundraising and funding bodies.

The fact that the educators and educator-researchers (cf. definitions in section 3.3.1) list language and ICT skills among their deficiencies, while researchers list

management and organisational competencies seems to correspond well with their differences in research competence. Language and ICT skills address the desire to do better research while managerial and organisational knowledge and competencies address a desire to provide better conditions for doing research.

One researchers however, expressly wishes that systematic peer coaching would take place among the colleagues within the department. Among the components which such a coaching might include, the researcher suggests mutual discussion and critique of work in progress, exchange of ideas and knowledge about relevant journals for publication and sources of funding, and cooperation in grant application and other activities which the individual researchers might feel uncomfortable or unknowing about.

The head of department acknowledges that some of the senior academic staff are educators with little or no research production (cf. definitions in section 3.3.1), but contends that this is due to the original criteria for their employment with the department. He sees limited potential for change, as this category of staff lacks research competencies and motivation. instead, the junior staff, PhD students and assistant professors with PhD degrees are seen as the future resource base for the department's research.

Hence, the use of resources for training and coaching of academic staff in order to improve their research competencies – while clearly a management task – should be prioritised to encourage those who are most likely to engage positively. While the junior staff receives formal training through required PhD courses, training and coaching the senior staff educators is considered to be a waste of resources, as it is not expected to change the research performance of this category of staff anyway.

Educators, educator-researchers and researchers might have different training and coaching needs but most of them nonetheless have such needs. Some lack fundamental knowledge such as how to write an academic paper and where to publish it, knowledge of the BFI and how it is used (much to the astonishment of the head of department who states that it has been repeatedly communicated on the department research days), or knowledge of how to raise funds and to have fundraising support through the university fundraising agency.

Although it is free for all to engage in such activities out of their own initiative and despite the fact that it is encouraged by the department management (albeit passively), it does not seem to happen in any substantial measure without some kind of formalised learning strategy.

In order to establish a serious learning strategy, a systematic learning survey should be carried out. Such a survey must consider what tasks the researchers need to be able to perform, what competencies are needed in order to perform them, the extent to

which those competencies are present with the individual researchers, what the training needs are, what the best learning formats would be and finally, how the effects of learning can be measured (Larsen, 2006).

6.3 Organisation

6.3.1 Control Systems

The word control has a negative ring to most people's ears. Basically, no-one wants to be subject to control. Who hasn't experienced the discomforting feeling of passing one's passport to a border control guard who with minimal facial expression examines it in order to assert whether you may pass on and enter the country on the other side of the dotted line? Similarly, at work, no-one wants the boss' controlling gaze over one's shoulder in order to check whether the work is done properly and efficiently.

Control, in other words, has a bad name. Yet in organisations, control is an essential means to make sure, that the processes that take place, the procedures which are followed, and the resources which are spent lead to the desired outcomes. Fortunately however, none of the uncomfortable forms of control mentioned above are required to this end.

Control management is linked to the notion of quality which, in turn, can be defined in a number of different ways. Quality can be understood as "excellence"; as the best you can get (if you have the money) in terms of perfection, refinement and performance. Quality may also be defined in relative terms as "value for money". Quality, by this definition, is contextual and relates to need, availability, price, and and relevance compared to other solutions. Quality can be defined as consistency or compliance with certain specifications. In this sense, quality is a matter of whether you can rely on product specifications. Finally, quality can be defined subjectively as customer satisfaction (Neergaard 1997).

The different notions of quality call for different approaches to control. In academia, the quality of research is controlled through peer reviewing, as expressed through the dictum "research is whatever your peers allow you to call research". In this sense, it may be held that quality control in academia is 'outsourced' as it is not in your own hands but in the hands of (anonymous) peers.

However, a lot can be done in order to heighten the probability that peers will turn their thumbs up. Research must be novel, relevant, communicated and disseminated in order for this to happen. Researchers, in other words, must know about related research, they must be able to do research which leads to new and relevant results, they must be able write about their findings, and they must know where to publish them and how.

Measures can be made to improve all these elements of the research process. Performance can be measured, training and coaching of researchers can be implemented in order to improve performance, and results can be monitored in order to assert whether the measures have worked according to intentions. But rather than a quantitative approach to control counting speed, resource consumption or output, this is a qualitative approach to control, focusing on processes (de Bruijn 2009).

For a research unit like the AD section with a below average research output, the first ambition must be to produce research articles which can pass peer review. This complies with the notion of quality as adherence to specific standards, as research articles must conform with established formats for communicating research (argumentation, referencing, etc.) in order to pass a peer review.

Once this has been achieved, the notion of quality as customer satisfaction could be a second ambition, in the sense that research which is relevant to other researchers is more likely to be cited than research than less interesting research. And finally the notion of quality as excellence could be an ultimate ambition, in the sense that only excellent research has a chance of being published in the most distinguished research journals.

The head of the AD:MT department finds that performance monitoring is adequately catered for by means of the VBN and the yearly staff development interview (MUS). While the VBN offers a quantitative measurement of the research production, the MUS offers a qualitative, on-to-one forum for the communication of individual obligations, needs and wishes.

Yet, while the VBN can be a useful meter for linking performances to rewards, it does not reveal much information about the quality of the processes that lead to the research output. And the MUS may give information about the individual researchers own ideas about their processes, yet they may not overcome the hermeneutic dilemma that they may not know what knowledge could be relevant to them.

It is deeply rooted in academic culture that individual academics enjoy a high degree of autonomy in organising and conducting their work without having to report to the management. Hence, there is likely to be a high degree of hesitation among academics towards any kind of control systems and performance measurement. As exemplified above however, this may rely on wrong assumptions about the nature and purpose of control systems and a lack of knowledge about the potentials of performance measurement when designed appropriately.

Also, espoused values in academia may not necessarily correspond with the fundamental assumptions of the individual researchers (Schein 1991). If this is the case, the discrepancy between the two is likely to lead to wrong interpretations about how an academic organisation actually works. In discussions among the AD academic

staff there seems to be a certain level of dissatisfaction with the fact that in the current system, only teaching is measured quantitatively, whereas research is simply supposed to happen during the remaining work time.

As an example, the official estimate that administration is supposed to take up 10% of all work time is considered grossly out of proportions with reality, as practically all researchers have a feeling that administrative tasks make up a significantly larger proportion of the work time. While there is no culture of keeping time sheets – a very simple control measure – this remains a feeling rather than a fact, which makes it very difficult to respond to.

In order to get an idea of how people spend their work time within the AD section, I asked four colleagues to keep time sheets over a four week period.[12] While this experiment involved too few people over a too short period of time to bear any statistical significance, they might be indicative of how time is actually spent. According to the survey, people spent more than twice the amount of time (26%) on administrative tasks than anticipated or just as much time as they spent on teaching (fig.). In a similar experiment, I kept personal time sheets over a period of 13 weeks. Despite being conscious about my own time planning and turning down administrative tasks whenever possible, I still ended up spending 18% of my time on administrative tasks.

Fundamentally, different kinds of control systems are needed in order to continuously evaluate whether strategic goals are approached. Control systems must be appropriately designed and introduced in order to be accepted and hence to lead to useful insights. And even if control systems may still be an alien concept in current academic culture, organisational culture, as Schein (1991) argues, can be changed through deliberate action.

6.3.2 Culture and Organisation

As a university research department, AD:MT can ideally be described as an innovative organisation or 'adhocracy' (Mintzberg 2003). Unlike more traditional types of organisations, adhocracies have a short distance between the strategic apex (management) and the middle line which is made up by highly trained and specialised experts (researchers) and thus forms the most important part of the organisation. Mintzberg describes innovative organisations as organised task forces or project teams which operate in a matrix structure, tied together by means of integrating managers and standing committees. Experts may be grouped together in functional units, but mainly for 'housekeeping purposes' (ibid.).

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[12] Each person was asked to fill a predefined time sheet according to time spent on teaching, research, administration and other. Each of these categories had subcategories, and a guide was provided with examples of how to register different tasks in order to optimise the consistency of how the time sheets were filled out.

But the AD section of the AD:MT is also to a large extent an example of what Anderson & Barlebo Rasmussen refer to as the 'researchers' hotel' (2005). The employees act as if they were in a hotel: They may share the same address, but they stay in each their office and there are no formalised structures or incentives for cooperation. As one employee expresses it, cooperation occurs practically only spontaneously: "Everything which is innovative in this organisation in fact happens very informally between people who discover that they share a common interest".

The 'core groups' (thematic research clusters) which the different researchers are associated with represent practically the only formalised meeting forum, are overwhelmed with administrative tasks which everyone is fed up with. Furthermore, these groups have no dynamism as membership is defined solely by professional specialisation and be common projects. So they are no source of inspiration nor of creative energy. Or as Anderson & Barlebo Rasmussen put it:

> Knowledge is created through dialogue and other forms of exchange of inspiration between people. When we associate with the same people for longer periods of time, the innovative potential of the relation is diluted. Over time, old networks take on the characteristics of social networks and the time spent together takes on a ritual nature.
>
> – ibid. p. 142, author's translation

In recognition of the interpreted wish for self-management and in respect of the freedom of research, the head of department pursues a policy of minimum interference. This policy is guided by the metaphor of the self-organisation of a temporary camping site such as at outdoor rock festivals. On such a camping site, everyone is free to put up his/her tent anywhere, as long as a system of access ways is kept free in order to allow for people and services to move around (figure).

By this metaphor, each tent represents the individual researchers who are free to do their research in whatever field they want and to cluster with whomever they want, while the access ways represent the organisational framework which the department offers in terms of support staff, services and equipment. In more concrete terms, the head of department does not wish to force specific requirements onto the research staff, but merely to encourage research and provide services whenever they are asked for.

In terms of cooperation between colleagues, several of the academic staff express that it works well in terms of educational tasks, but generally regret that the monthly core group meetings tend to be more about education and administration than about research. With regard to management, some feel that the department management is weak and invisible. A more proactive management which is more responsive to the needs of the individual researchers is called for, although it is acknowledged that

managing a group of academics who see themselves largely as independent researchers is a difficult task, and that a more 'bossy' management style would not be productive.

Also, the academics almost in unison complain about the absence of support staff for research tasks. In fact, most academics feel that they themselves have to perform administrative tasks which they think they ought not do and which they certainly do not like. The general impression is, that the administrative staff is mainly concerned with performing tasks which are demanded by higher administrative levels, leaving it to the academic staff to perform many administrative tasks related to teaching.

When asked to specify what kind of administrative support they would like in their research, some point to the need of academic support staff to perform routine research tasks such as literature searches or the compilation of questionnaires, etc. However, some state that they would prefer to hire students to do such tasks, as they are more capable than secretarial staff and cheaper and more easy to hire for specific tasks than academic staff. However, hiring students is only possible with external funding.

It seems thus, that the management principle of minimum intervention is insufficient to pick up these dissatisfactions among the staff. 'Access ways' in the form of passive service and support, in other words, might not be enough to instigate a changed research behaviour. Exchange between staff and management about the style and level of management therefore seems to be an important first step. While the analysis that professionals require particular forms of management is correct (Andersen, Barlebo Rasmussen 2005, Løwendahl 2005), the conclusion to follow a principle of minimum interference might be wrong.

Beyer (2006) among others, argues in favour of the concept of leadership rather than management as an appropriate response to managing professional organisations. Resonant leadership (Goleman, Boyatzis & McKee 2002) and value-based, communication and learning-driven leadership (Beyer 2006) engages with the professionals in a dialogue towards self-management. Hence the goal – independence and self-control on the part of the professional – is the same, but the way to reach the goal should be through interaction rather than minimum intervention.

Although the employees are critical of the current management style it does not mean however, that change is necessarily going to be easy. Organisational culture is both sticky and pervasive and difficult to change in a not-so-young organisation like the AD section.[13] The reason for this is that culture as expressed through concepts and assumptions, convictions and values represents a psychological structure which infuses a sense of predictability and meaning. Developing an organisational culture, in

[13] Ironically, while many of the problems of the AD section seem to relate to the kind of stiffening up which characterises a mature organisation, the employees typically explain problems with reference to the 'fact' that the organisation is still young.

other words, is a way for the organisation to sustain its integrity, autonomy and identity (Schein 1994).

According to Schein, what is required to successfully change organisational culture is a process of defreezing, change, and refreezing. In order for unfreezing to take place, a sufficiently big disequilibrium must be present so that it is clear that merely reinforcing existing fundamental assumptions is no longer feasible. Unfreezing encompasses three processes.

First, an adequate amount of disconfirming information must be present for the disequilibrium to be felt. It must be clear, in other words, that business can no longer continue as usual. Second, the disconfirming information must be linked to new goals and ideals, which in turn create anxiety and/or guilt; a sense of 'what have we done?' and 'what can we do?' And finally, sufficient psychological comfort must be established in order to devise a way forward without the loss of identity and integrity: OK, its bad, but we're good, so we can do it.

In order for these processes to lead to a successful result where employees allow themselves to admit the disconfirming information instead of defensively denying it, self-organisation and minimum intervention is not enough:

> The importance of visionary leadership is evident in this context, inasmuch as it serves the purpose of providing the psychological safety which allows the organisation to move forward.
>
> – ibid., p. 280, author's translation

In the following change process, a cognitive restructuring must take place. This may happen either by adopting by experimentally trying to adapt to the environment, or through psychological identification with role models. Importantly, cognitive restructuring must precede or accompany behavioural changes in order for the latter to be lasting. Otherwise, behaviour might simply change back to match the old cognitive structures, once the crisis is perceived to be over.

Finally, new behaviours and insights must be sustained through new confirming information in order for the change process to refreeze. Otherwise, the organisation may remain in an unstable state of continued search and coping processes.

While the new research oriented performance and budgeting criteria may represent a sufficiently big disequilibrium compare to the previous identity of a teaching organisation, the challenge of the AD section, and particularly of its management will be to reassure, that competencies can be adapted and developed to cope with the new demands, and that a new culture and identity rooted in research and a changed organisational structure can even be attractive.

6.4 Strategy

6.4.1 Strategic Management

The purpose of strategic management is to make an organisation better at what it does through an analysis of its environment and its resources and subsequent formulation and implementation of a strategy achieve it (Lynch 2009). Strategic management can be either prescriptive, starting from a definition of the organisation's purpose, or emergent, reacting to changes in the environment as they occur, or both (ibid.).

In strategic management, both context (the environment within which the strategy operates), content (the main actions that different people must carry out to implement the strategy), and process (how actions link together and interact as the strategy unfolds), are important elements to consider. While the two former may be relatively easy to get into grip, the latter represents the biggest challenge in strategic management, as people may have different views and interests, and environments may change (ibid.).

Different organisations may respond differently to environmental change depending on the nature of their environment and their resources. Rather than staying in the same environment (or market) and stay competitive mainly through continued efficiency improvements, an organisation may try do redefine its market through unique products and thus eliminate competition altogether in a so-called Blue Ocean Strategy (Kim, Mauborgne 2005). An organisation's capacity to do so is very much dependent on its innovative capacity and success in cross-fertilising between different realms of ideas (Johansson 2004).

Internally, an organisation must examine how its management, organisation and resources are tuned to meet the challenges of implementing a strategic change and to which extent they can be altered, improved or moderated to that aim (Crossan, Fry & Killing 2004). Hence, the actual formulation of a strategy is an act of balance between modifying the different elements of the organisation itself – and the strategic advantages and disadvantages of doing so – and modifying its environment.

In order to formulate and implement a research strategy, a department research council (DRC) has been formed within the AD:MT with representatives from each of the department's research groups. The head of department sees this as an important delegation of management responsibility and foresees that the DRC will have certain measure of executive power. The head of the DRC however, is hesitant towards this prospect and insists that the DRC should only have a counselling role.

The DRC has written a six pages draft note concerning the department's organisation and research strategy for 2010-14 (Jensen, 2010). The note lists 11 current areas of research within the department which are clustered into 4 research groups which will form the new organisational structure of the department. All academic staff will be hosted in one or more of these research groups according to their research interests.

The note states that "[the department's] primary research goal is to build and maintain a national, international and dynamic research culture and environment within the fields of the department's programs based on values of creativity, broad mindedness and cooperation with a variety of partners [...]" (ibid. p. 4). It also states that this goal must be achieved through academic activity among all academic staff, peer reviewed publication, conferences, research projects, an active PhD environment, and innovative thinking.

In its current formulation, the DRC draft note is far from being a research strategy by any theoretical definition. It is not based on any systematic analyses, nor does it link visions to concrete actions. In addition, the head of department's idea of delegating executive power to the DRC which it does not want, is not very promising for the prospect of implementing a research strategy, should a real one be formulated.

Strategic research management in the context of the AD:MT, as this thesis hopefully suggests, is a far more comprehensive endeavour than suggested by considerations of the head of department and the DRC. Even when the environmental scan has been performed, a vision, a mission, and a set of values have been formulated, and strategy elements have been defined, the real task is only yet to begin. The task of implementation.

The implementation of a new strategy is a change process. And change processes must be carefully planned and implemented in order to be successful. And when the difference between the current and the desirable state of the organisation is big – as it seems to be for AD:MT – the process is likely to take years.

In a change management perspective, the formulation and implementation of a strategy are only two steps in a long chain of steps necessary to achieve a successful organisational change. According to Kotter (1999), the formulation of a strategy must be preceded by an initial sense of necessity within the organisation and the establishment of a leading coalition, and succeeded by several steps of vision communication, competence improvements, short term gains and cultural consolidation of new procedures, and more – which altogether form parts of the strategy implementation – in order to succeed.

An initial sense of necessity might be established once the new performance measurement principles (BFI) and the performance based budgeting which is linked to them start to show their effects. As it seems, the DRC cannot constitute the leading coalition which is necessary to initiate and implement a change process. First, they may have joined the DRC for different reasons and second, they may not have the right composition of competencies and personal profiles, nor sufficient mutual trust to carry out this task (ibid.).

With or without recommendations like the ones put forward in this thesis, a strategy must be formulated. This strategy must be communicated. And it is crucial how this happens. Communication of the strategy to the employees must be simple, it must be communicated in many different ways, in many different contexts, and it must be communicated many times. Key actors must pioneer the implementation of new initiatives in order to build trust, seeming inconsistencies must be explained and employees must gain ownership through interaction (ibid.).

New competencies required to implement the change must be built with the employees. And although change is a long-term endeavour, short term results must be made in order to sustain confidence that efforts are worthwhile. Once achieved, new results must be consolidated, and most importantly, new procedures must be rooted in the organisational culture so that employees do not retreat to old behavioural patterns, once waters are smooth again.

6.4.2 LEAN

The basic idea of lean thinking is to optimise processes with regard to value. The opposite of value is waste, or *muda*, which can be defined as human activity which absorbs resources without creating value. As Womack & Jones (2003) put it,

> ... lean thinking is *lean* because it provides a way to do more and more with less and less – less human effort, less equipment, less time, and less space – while coming closer and closer to providing customers with exactly what they want.
>
> – p. 15

And they make an important addition:

> Lean thinking also provides a way to make work more satisfying by providing immediate feedback on efforts to convert *muda* into value.
>
> – ibid.

LEAN, in other words, establishes a connection between customers, employees and productivity. By optimising processes and the use of resources, high value can be created which makes costumers happy, which, in turn, motivates employees and make them more responsible, so that they get better at optimising processes and the use of resources... (Christiansen et al. 2006).

Lean is based on five principles: Identification of customer value, creation of value flows, creation of flows without stops, introduction of new management/control principles, and the performing of continuous improvement (kaizen) (ibid.).

In its original formulation, seven types of *muda* are considered in LEAN: *defects* (in products), *overproduction* of goods not needed, *inventories* of goods awaiting further processing or consumption, unnecessary *processing*, unnecessary *movement* (of people), unnecessary *transport* (of goods), and *waiting* (by employees for process equipment to finish its work or on an upstream activity) (Womack & Jones 2003). Christiansen et al. (2006) add an eighth muda: waste of the employees' intellectual resources.

Originally conceived for production industries, it may seem alien to discuss LEAN in the context of knowledge organisations, and particularly of a university research department. First, it does not deal with the production of physical goods, so the *mudas* of inventories and transportation of goods seem a little out of place. Second, there are no customers in the conventional sense, as the outcomes, new knowledge and teaching, are not commodities as such. And finally, the processes of research are not necessarily wasteful even if they do not lead to immediate results.

However, the production of new knowledge and teaching does involve a number of processes which can be made subject to lean thinking. In fact all routine processes, of which there are many in both research and teaching, can be made subject to lean thinking. While research is often conducted by individuals or project groups, teaching is to a large extent a joint effort involving everyone. Although the focus of this thesis is research, giving an example from teaching administration may better explain the appropriateness of lean thinking in a university department.

For the past year or more, practically all employees within the department have been involved in the revision of the architecture and design programme curriculum. In a LEAN perspective this process should be targeted at optimising the value of the learning of the students. Thousands of work hours have been spent on redesigning the course structure, defining the content of course modules, formulating new learning goals, course and examination formats, writing syllabi to implement course content in actual courses, and allocating teaching staff to the different modules.

Rather than taking this enormous revision effort as an opportunity to fundamentally review the way courses are taught and the way the programme is organised in order to add more value to the students' learning, most effort was put into transporting old course content into the new course structure so that teaching staff could largely keep on teaching what they had always taught the way they had always taught.

It may wonder why so many highly educated people spend so much time on something which adds so little value. Womack & Jones (2003) explain it this way:

> Why is it so hard to start at the right place, to correctly define value? Partly because most producers want to make what they are already making and partly because many costumers only know how to ask for some variant of

> what they are already getting. They simply start in the wrong place and end up at the wrong destination.
>
> – p. 31

In the case of the architecture and design curriculum revision, another important factor played a role. The process was designed as a bottom-up process, but without focus on the value stream; that is, the total quality of the curriculum as seen from a student perspective. On the contrary, the staff representing each of the three specialisations which the programme offers were asked to develop each a third of the curriculum, albeit with some negotiation of mutual content and with the aim of not creating overlapping content.

In this way, the primary focus of the three groups of staff became to safeguard the largest possible share of the total teaching for their own specialisation. And the primary focus of the individual staff became to safeguard course modules that would match their own teaching interests. And as the logics of this process became clear, everybody devoted lots of time to participate in it, in order not to loose the battle.

In addition, the whole process was characterised by endless eMail communications, meetings, over-detailing of curricula and syllabi (in order to make sure that only very specific teaching content would match), and ultimately a more elaborate system of coordinating course modules than was the case by the old structure.

Hence, the process produced several types of *muda*. The product became defective, or at least not as good as it might have been, because it was defined by concerns for the producer (the teaching staff), not the consumer (the students). There was massive overproduction because everybody felt that they had to be in the game in order not to loose it. There was lots of unnecessary processing because of unstructured communication and an elaborate coordination system. And there was lots of waiting because meetings became a matter of negotiating shares of the teaching, rather than to aim at a jointly formulated structure and content.

As for the eighth *muda*, or the flow of work, one employee, elaborating on several years of experience working at the AD section says:

– The optimal experience is when you enter a condition of flow. When you get absorbed. Then you are very focused. Within the department this is way to rare. It may happen in flashes with a few colleagues. Couldn't it be done with more colleagues? Yes! But maybe we are not good enough to condition the format.

(quoted in Steinø 2008, author's translation)

The condition which this employee calls for is explicitly mentioned as an important element of LEAN by Womack & Jones (2003) with reference to the psychologist Mihaly Csikszentmihalyi:

> The types of activities which people all over the world consistently report as most rewarding – that is, which make them fell best – involve a clear objective, a need for concentration so intense that no attention is left over, a lack of interruptions and distractions, clear and immediate feedback on progress toward the objective, and a sense of challenge – the perception that one's skills are adequate, but just adequate, to cope with the task at hand.
>
> – p. 65

No wonder that practically everyone who has been involved in the curriculum revision complain that administration and meetings take up all their time – despite the fact that they participated voluntarily.

Implementing LEAN in a place like the AD section however, is not something you buy off a shelf and go home and unwrap. It requires a change of culture within the organisation and an entirely different approach to leadership. It is something which can only be implemented slowly over a long period of time by the exertion of the utmost perseverance.

6.4.3 Network

According to an ancient Chinese saying, if two men each have one coin and decide to swap, they will each still have one coin. But if two men each have an idea and decide to swap, they will each have two ideas. Swapping ideas, in other words, is a costless and mutually beneficial activity. In order to put oneself in a position to swap ideas – or exchange knowledge – it is necessary to connect to the other person whose knowledge is relevant to you. That is what networks are good for.

Networks can take on many different forms and purposes, yet four different elements are central to all networks, the network partners, the network vision, the network processes, and the network architecture (Gustafsson 2009). The network partners constitute the resources of the network. They may have different motivations for being in the network as well as different roles in relation to the other partners. The network vision defines the purpose of the network as defined by the motivations of the network partners. The network processes are the concrete actions which take place within the network in order to fulfill the vision. And the network architecture defines the way the network is organised, that is, how the partners engage in the processes in order to fulfill the vision (ibid.).

Some networks may serve the purpose of exchanging knowledge while others are collaboration networks. Relative to the type of network, processes may be learning

processes, innovation processes or change processes. Some networks are *systemic networks* where diverse partners collaborate along a value chain. Other networks are *isomorphic networks* where similar partners collaborate on developing their internal competencies. *Joint ventures* are networks where diverse partners collaborate on a project within a finite time frame. In *umbrella networks*, partners – diverse or similar – collaborate within a network organisation to promote common goals or interests. In *practice communities*, peers across different organisations exchange ideas and knowledge, tricks and experiences about mutual professional challenges. *Mass collaboration* networks are internet-based networks where large numbers of changing actors participate in partly self-organising virtual collaborations on innovation and value creation. And finally, *social networks* serve no operational purpose but are simply means to get to know relevant people which, in turn, may lead to actual collaboration (ibid.).

Professional networks among the researchers in the AD section seem to fall into one of three categories:

1. Local networks within the department and the university, and possibly other national research environments developed mostly through teaching activities.

2. Nordic networks developed as a result as a historical orientation towards the Nordic countries and partly due to language barriers.

3. International networks, typically focused on a part ,or parts, of the world developed through previous positions, conferences and international collaborations.

Some of the interviewees use their networks simply as a contact base through which they stay updated with events within their field, such as new developments, conference activities, and career moves among colleagues. Others have more formal collaborations within their network, which also tend to define it in the first place. None of the researchers state that they have a deliberate way of using their network, but most nonetheless stated that they felt that their network is important to them in their professional life although not all linked this importance specifically to their research activities.

Being more conscious about the purpose and value of being part of different types of networks may significantly boost the competencies of the individual researchers as well as the department as a whole. Knowledge about different networks and how to become part of them is therefore essential. As a strategic tool, networking can also be used to both develop and position particular fields of research in which the department has an ambition to excel.

7. Conclusion and Perspectives

The Department of Architecture, Design and Media Technology, like other Danish public research organisations, is facing new challenges in the form of performance measurement and performance based budgeting. As described in the background section of this thesis, the Architecture and Design section of the department does not appear to be fit to meet this challenge. Therefore, a research strategy is required in order to build new competencies which respond to the new demands.

The work presented in this thesis is comparable to a consultancy report. It contains recommendations for different strategy elements, responsibilities and actions. Yet, an organisational strategy cannot be implemented solely by consultants. It relies on the active involvement of the management, key actors, as well as all other employees for its successful implementation. This is a matter of process.

Therefore, this thesis is focused on content rather than process. Trying to devise a process would liken the task of peeling shrimps with gloves on. Even though you may know the techniques to perform the task, and all the ingredients are right in front of you, it cannot lead to a satisfying result. Because the conditions are not right.

Regardless of theoretical and analytical insight, implementation is a continuous process of action, results, evaluation and adjustment. And as such it is unpredictable, even if standard situations can be described and discussed. Hence, for all its potential merit, this thesis is bound to be an unfinished work.

Nonetheless, it has been an intriguing and eyeopening endeavour. And it is my hope, that the analyses and reflections put forward on these pages may form a useful basis for real change to the benefit of the Department of Architecture, Design and Media Technology.

Yet, even though this work is related to the specific context of the AD section, it deals with issues which might be shared with other similar organisations. If it may serve as a source of inspiration and discussion beyond its intended scope, the pleasure of having done it would only grow.

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