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CMO343

Individual Project : Interim Report

" What management action can be taken to improve ratings from NSS"

Abstract

This study outlines and evaluates work carried out in the schools of computer science and informatics (COMSC) of Cardiff University. The study will be using a systems thinking approach which will be explained in the document. This study aims to outline the problems the COMSC school face, in regards to promoting their degree schemes , successfully recruiting students, givging the students a fulfilling and enjoyable experience. In turn how management action can be taken to affect these factors. This section of the report will outline the decisions made so far in the project and the hurdles that have had to been overcome already. It will also describe future works and aims for a finished project.

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1. Introduction

Cardiff University's School of Computer Science & Informatics is under constant pressure to improve the ratings it receives from the National Student Survey. It is also trying to increase the number of students it attracts each year. In particular Students from over seas. The School relies on its Students as a major source of income; due to this the Students are obviously held in high regard. Unfortunately there is no common agreement on the factors affecting policy and decisions when it comes to this area.

Within my Project I will aim to create a model which outlines the relationships of factors affecting policy and decision making, such factors are: Teaching quality, student numbers, contact time etc. The Model will aim to be useful for all that are involved in decision making and so they can simply understand the constraints and guides to policy and decision making. In turn this policy can be used as the basis for any future talks on strategy and policy within the School. Furthermore the model can be used for School management to use when looking at alternative policies.

Since the submission of the initial report I have looked at tweaking the title of the project. I was nervous at first to promote this idea to my supervisor. I then realised with such a large project as this, which has an indefinite scope, there are always going to be modifications and changes. The original title was " Factors affecting COMSC performance" and I am changing the title to "What management action can be taken to improve ratings from NSS" I believe this new title fully captures the scope of my project in it's current state. Armed with a new title I felt much more comfortable to proceed with my work.

My overall aim is to produce a model which benefits the school. I want them to be able to see the affect decisions have and how allocating resources can change outcomes. If I can finish this project and have benefited the school, how they make decisions and how the view policy, I will be very happy.

2. Background

This project has a variety of hidden aspects to it, which, from the outset were not obvious to myself and to you the reader. Firstly the physical actions that are taking place within the school at the moment, these are the actions that directly attract new students and such aspects as media attention. This part of our performance is held in many guises; marketing and advertising, promoting the COMSC courses. Spear heading this work is Rob Davies (Systems manager) and Sarah Huckson (marketing & communication officer).

Rob has given me fantastic information from the word go. Within the appendices you will see [fig1] this is a reply I received from Rob when asking some general questions. He has outlined the parameters which the school have to work within. Alongside this he has highlighted the need for attracting foreign students and how they help towards the University, as a whole, goals. The information Rob has given me will be invaluable throughout the project. It has given a correct, statistical viewpoint to begin from. This has cut down the need for assumptions. I am also planning to sit in on a focus group, which aims to answer the question "what attracts a student to Cardiff COMSC when looking at a

University to study at?" the outcome of this focus group should have a huge beneficial effect on the work I undertake in January. Alongside this information Rob has been kind enough to give me access to the Schools Google analytics reports. This gives me a great advantage when wanting statistical information and support on making decisions later on in my project.

The Second part of this project is more of a "soft" section. By soft. I mean the approach I will be taking is very "soft" there is no exact science and it is largely down to opinion and research, this does not mean the approach I use will necessarily be soft I just want to highlight that this project is going to have my personal though processes behind it. And with such a project there is no exact answer. I will make sure the finished product I unveil is as complete and supported, by evidence, as possible. I have to constantly remind myself that I am working on my perceptions and that there is no hard and fast root to answer of my project title.

. I will endeavour to be indifferent in the views I put across. I want to give a unbiased piece of work to help aid the school in the future. The Softer section is the section I obviously have more control over, but this said, it is also the section without one true answer. As mentioned above the marketing and advertising side depends largely on analytical review and focus groups to get statistical answers. Whereas the section of building a model to help towards a new approach is largely unidentified ground. This means I have free roam. To make sure my work is as justified and valid as possible. I will be using a large referencing spectrum to help support my work.

I have also been reviewing external metrics. This includes the National Student Survey (NSS) (fig3). They are a government funded organisation that create, distribute and review detailed surveys. These surveys are distributed to students in their final year of study at a particular University. These surveys are then reviewed and complied for the public to see. It is obviously so important for Universities to score well on such a review board. This is at the heart of my project and this is was my first stop when I began research on my project.

I am also changing the title of the project. I have chosen to change the title because the scope of the project has changed as I have begun my research. The original title is: Factors Affecting COMSC performance. I am looking to change the title to something more fitting of the project in it's current state: What management action can be taken to improve ratings from NSS.

2.1. Who are the NSS

What: The (NSS) National Student Survey is a yearly independent survey, it targets final year undergraduate students to evaluate their experience at University and how they benefited from the course they chose. The NSS asks final year students a variety of questions, such sections are asking questions on : course content, teaching quality, support and quality of answers. They students that complete the survey are also given a section so that they can comment on the positive and negative aspects of their course.

 Where: the survey is completed online by final year undergraduate students. The results are then collated by the national student survey published on a website : http://unistats.direct.gov.uk. These results are then readily available online for whoever wishes to view them.

 Why: the published results have 2 forms of benefit. Firstly they tell a prospective student about a course and University they are potentially

interested in. the review they receive is free of charge and an honest review from the people that can give the best review, current students. The second benefit of the NSS is that the Universities and institutions get to benefit from constructive criticism and build on positives or negatives that have been outlined. It is also a anonymous and positive way of student union's airing their issues and problems they have with the coursed they are involved with.

3. Approach

3.1. Choosing A Modelling Technique

Solving such a problem is so complex. There would be many different ways in solving the problem. I can only do one such way. I have chosen to build a model to help identify problems with the schools approach. This model will also aid decision making in the future.

My first large decision was to choose a modelling technique to use. There are a variety of techniques I could have used. I short listed it down to two techniques very quickly. These approaches are: (1) Soft Systems Methodology and (2) System Dynamics . It was a decision between these two approaches because the support and teaching I receive. Both these approaches are native to my Schools environment and my supervisor is hugely knowledgeable in both.

I began research on the two approaches and the decision was made based on that research along with my own feelings towards each approach, and how comfortable I felt.

Firstly Soft Systems Methodology (SSM). SSM is a systems thinking approach, it differs from other "hard" approaches because it looks at the concept "system" in a very different way (Wilson, 2001). It does not differentiate between hard and soft systems. SSM gathered pace and its fame from Prof Peter Check land. It has also been developed by Dr Brian Wilson. SSM deals well with complex situation, and with scenarios that struggle to gain common agreement. It deals with the messy/complex situations very well. It also looks at the direct needs of a problem and where a service requires support. Soft Systems Methodology is built through several steps. You begin with a Root Definition (RD) this captures the purpose of the system and allows management to come to agreement on what the system should be doing. The RD captures different viewpoints such as the owner of the system or the customer. The root definition is then checked using a system known as CATWOE. CATWOE checks the; Customer, Actors, Transformation, Weltanschuung, Owners and Environment. Once this RD has been checked and agreed upon it is used as a base for the conceptual model (CM) Wilson explains that these models are not the real world they are just a way of thinking about the real world, they do not represent the real world. You have to make your model defensible and that is all you can do.

Secondly System Dynamics. System Dynamics is a modelling technique or systems thinking approach. It lies on the harder end of the spectrum when analysed against other approaches. It is used for outlining, understanding and discussing complex problems. The approach was developed by Jay Forester in the 1950's. Due to its mathematical background it gives a structured and well disciplined approach to creation and simulation of a system (Coyle, 1996). The methodology is currently being used throughout public and private sector for policy analysis and design. System dynamics shines when it is used on managed systems. I feel it fits well with the COMSC problem I have undertaken.

Unlike SSM, system dynamics is on the harder end of the scale when looking at modelling techniques. I have lots of information at my disposal and this fits well with a harder approach. Using system dynamics will also let me look at the system for the future. And how change of forces now can affect the system later on. It also helps with decisions which have more of a long term impact.

The System Dynamics (SD) approach is usually used in long term strategic models. For this reason alone I feel the problem I have been given can benefit greatly from this approach. It will mean the model I create can have maximum benefit on the School.

From what I have learned and the questions I have posed to multiple lecturers. I have decided to use the System Dynamics approach for my project. It is fitting to the information I already have and I believe new discoveries will be accepted well using this approach. It has many similarities with SSM, but the key positive it has over SSM is the ability to validate models. This gives me a statistical view point which you cannot gain with SSM.

3.2. Analysis Of Interim Report Aims

in my initial plan I outlined a set of aims that I wanted to achieve by the interim report stage. The set of aims were as follows;

"Before I have published my interim report I hope to have achieved the following; all research complete on NSS and their criteria for scoring. All research regarding staff approach to the problem of NSS ratings and the problem of attracting more students. I will have decided on an appropriate modelling language and have begun to look into ways of building my model. Document my discussions with staff and how processes are currently completed, this will help me with the build of the model and also how the new approach will eradicate previous stumbling blocks for staff who have previously struggled with policy and decision making. "

-NSS Research: I have collated and compiled a vast amount of research on the national student survey (NSS) both for the school of Computer Science & Informatics, but also for other schools and even other Universities. This has given me the breadth of knowledge to understand what rating mean and how they are distributed for different organisations.

-Staff Problem of attracting more students: I have been very lucky to have the knowledge and support of Rob Davies throughout my project so far. He has given me key information into the process of attracting new students and how admissions on the school works. He has also given me access to the google analytics reports for COMSC. This gives me a statistical view point, form which I can base my work.

-Deciding on an appropriate modelling technique: as you can see from my review above I have chosen to use System Dynamics for my project. It gives me a solid foundation for review and redesign of the system I hope to create whilst going through this project.

-Look into ways that I can start modelling: I have started the process of early modelling by using influence diagrams to help process my thoughts. Influence diagrams have aided me by showing me where I need to research. It outlines aspects of the project I need to research deeper into. This gives me fuller information to go forward into the new year and begin modelling.

-Document conversations with staff members about current policy and decision making: Again I have been very lucky with the support I get from the school. Matt Morgan has been a huge help. He has given me insight to how the school goes about change and how difficult it is to get agreement from staff on new decisions. I am also on the Student Staff Panel for my cohort. This has been real gift. I get to see the life-cycle of policy change and

how long it takes for decisions to be processed within the school. This again gives me a viewpoint which helps when looking at the complex problem that is my project. It means I am less ignorant about the lengthily process that is "change" and especially change within this school.

3.3. Project Aims: Looking Forward

After lots of research I was worried I was looking too much at lagging indicators. Even NSS is at best 12 months out of date, needed to start looking at the possibility of capturing leading performance indicators. This is where the idea of a survey arose from and simple influence diagrams to start capturing information which could fill the survey.

Research based on NSS and Student opinion: although I have researched the NSS in a lot of detail I still need to find explanations for how they come to some of their figures. The negative of using the NSS as a yard stick is that they are lagging indicators and are always going to be out of date (purely because it takes 11 months to publish the results) this means I need to look for leading indicators. I have decided to create survey/questionnaire for my peers to fill out. This will give me the information I need to begin modelling with a good foundation. To do this questionnaire I have gained permission from Prof Nick Avis. He will review my questionnaire and sign it off before it goes live. This questionnaire will get me current information regarding my school, and instead of using other peoples information, I can tailor the questions to gain maximum benefit from my targeted demographic. If they questionnaire goes well I can also look to have a follow up survey which will dovetail with it's predecessor and mop up any answered questions or aspects of the project that need support.

I will also be building influence diagrams, as I have mentioned above. This helps me fuel where to next look for information. I have also been pointed towards the Guardian league tables (fig 4) and other regularly updated sources. These sources give me vision when looking to build my model and they help support and justify decisions I have made. This again will be supported by my survey that I shall be publishing in the new year. Influence diagrams are also the solid foundation that make up system dynamics model (Coyle 1996)

4. Conclusions

Although I have captured lots of data and information I am still striving for a lot more understanding, this is both for my benefit and for the project to have a level of completeness from all angles. I am still looking further into the National Student Survey and what the implications of their points system is. I also have to take into account a huge amount of cultural biased. This became hugely noticeable when reading the Times Good University Guide. It was clear different Universities attract different students and, in turn, they have different expectations of that establishment. This cultural influence is something that did not even cross my mind before starting this project.

At first I was quite alarmed my research was heading in the wrong direction and that I was not fully answering the question that my project posed. I questioned this with my supervisor and he seemed far less concerned than myself. He outlined that all research is good research and it helps you cross off the way in which you you are not going to complete your project. This opened up a whole new way of thinking for me, this was also where I really started benefiting from the influence diagrams. I realised they can help you decide what your next research angle is and why. Although I can't say my project will not change direction again, I can say I am heading in a positive direction, and as you can see from my preliminary influence diagrams (figure 2) I am aiding my own though process, and how work can outline where I should next look for information. I am now not intimidated if my project changes its shape in the future, I know my current work is benefiting my learning and benefiting the content of the project. Because my project does not have one set answer, or an end as such, I need to make sure I concentrate, work hard and endure change for the better.

Since starting this report I now have access (thanks to Robert Davies) to the COMSC google analytics page. This will be a great help to see what sections of advertising and marketing that are needed and what the school does in a reactive way when marketing their courses.

4.1. Updated Time-line

- I will continue to create influence diagrams while researching the project as a whole.

- Analyse results/ outcomes of focus group with year one students.

- Further research into KPI's of Universities and how these metrics affect decision making throughout organisations.

- I will be drafting the survey/questionnaire to reviewed by both my supervisor and Prof Nick Avis. This survey is key in building my project as it gives me the core information I require to work with when building my model.

- Begin modelling with information gained.

- Analyse the System Dynamics model. Making careful review and support for decision making within the school of COMSC.

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5. Table of Abbreviations

SSP = Student Staff Panel

SSM = Soft System Methodology

SD = System Dynamics

NSS = National Student Survey

COMSC = School of Computer Science and Informatics.

6. Appendices

Fig 1 – Email from R. Davies.

''Probably best to start with some facts:

*- There are two types of students, undergraduate and postgraduate. Recruitment
for each is currently entirely separate.*

- For undergraduates, there are basically two types 'home' and 'international'

*Home students numbers are capped (for all UK universities) by government(s), and
the university decides how many of its students places go to each School. These numbers
normally fluctuate per School depending on previous performance indicators (eg
no of applicants, retention rate of the pervious year, etc).*

*Last year all Schools saw an initial reduction in numbers (after UK government
announcements) which were later (partly) reversed by Welsh Government policy. COMSC
currently has 118 FTE students. (FTE = Full Time Equivalent, a student studying
one of our degrees counts as 1 FTE, a student studying a joint degree with another
School counts as 0.5 FTE).*

*The target of 118 FTE home students for COMSC has a 1% (check with Elaine Slater) error
allowed by the University. Go over and the University is penalised, go under and it
means lost revenue. If a School under-performs one year, its FTE numbers are often
reduced in the next year. (In practice the University keeps back a buffer of FTE places
to account for School's that exceed their FTE numbers, allowing the University as a whole
to meet - or get closer to - its FTE numbers)*

*- International student do not count toward home FTE limits. A School can recruit as many
international students as its resources (staff/lecture & lab space, etc) allow.*

- COMSC is under pressure to recruit:
-- the best students.

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-- students from dis-advantaged/non-traditional backgrounds (so called 'widening access').
-- International students.

- COMSC always makes its undergraduate FTE target, sometime through clearing (though less so in recent years).

- COMSC as a school has a reasonable track record for Widening Access. We take BTec students and the IS/BIS degree has seen more girls in the School (CS students are predominately boys). Also, the Welsh Valleys provide a strong hinterland for Cardiff undergraduates and its classification as eligible for EU 'Objective 1' status funding gives a broader social mix.

- For postgraduate recruitment. Most is done online through University web pages; advertising is handled by the University's International Division and a network of overseas agents.

How we recruit:
- Printed material (University Prospectus, School Brochure) are prepared 18-20 months in advance of students starting the course - a long lead time which gave us problems when we recently developed new degree programmes.
- Web sites (UCAS, University Coursefinder, School site). We can use google analytics on the School web site to track activity (popular pages, is info being found, reader's location, etc)
- University Open/Visit days
- Local School visits, and education fayres.
- Posters to Schools
- Information to international agents (who are the main source of applicants to University degrees)

Currently:
- Last year Undergraduate applications were up 18%.
- Postgraduate applications were hugely down; little/no advertising was done as our MSc degrees were being re-developed.
- This year it is too early to tell but International applications are up. We get monthly reports from the Registry about our application numbers; attached is the one from Oct for you to see the kind of info we are given.

Hope the above helps, come back to me if/when you have any questions."

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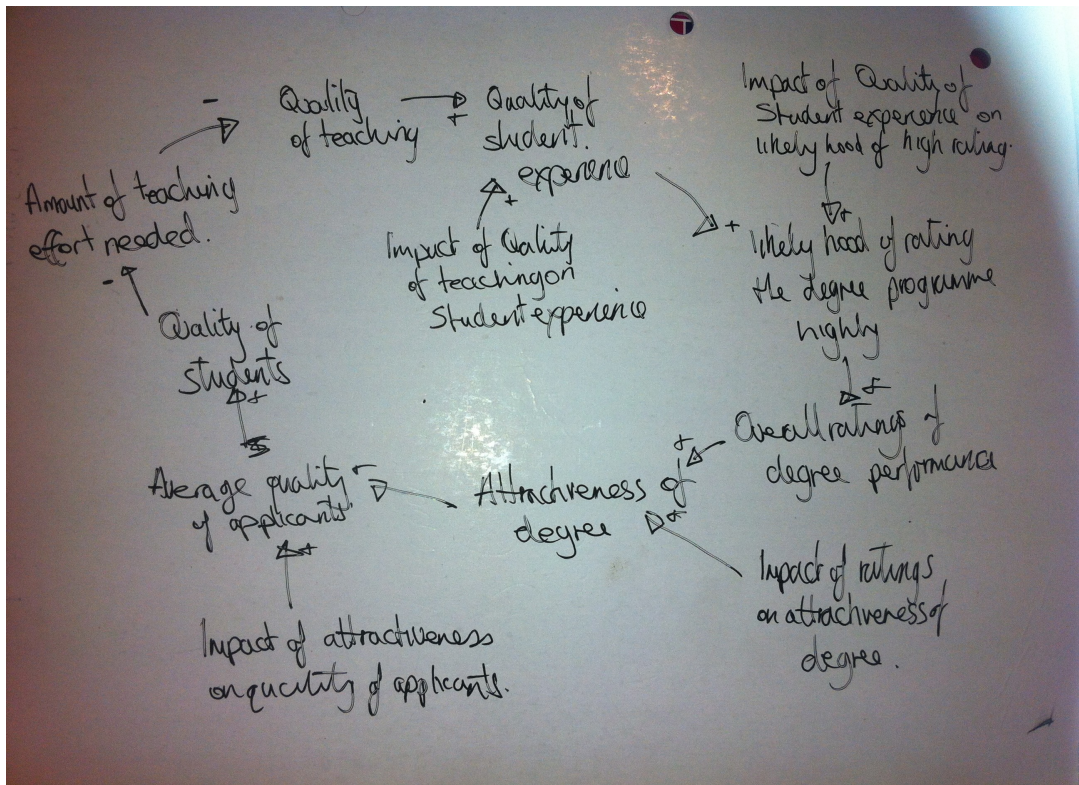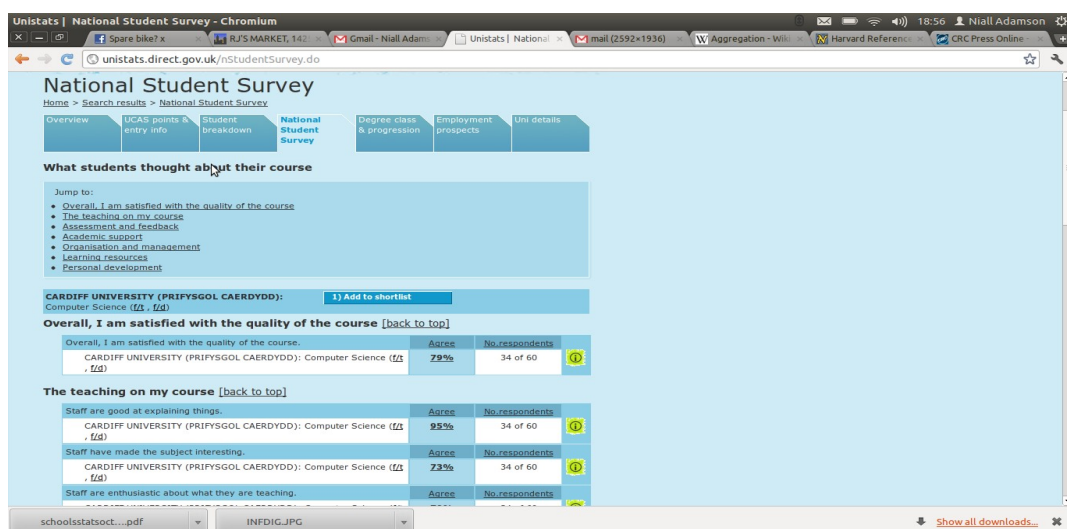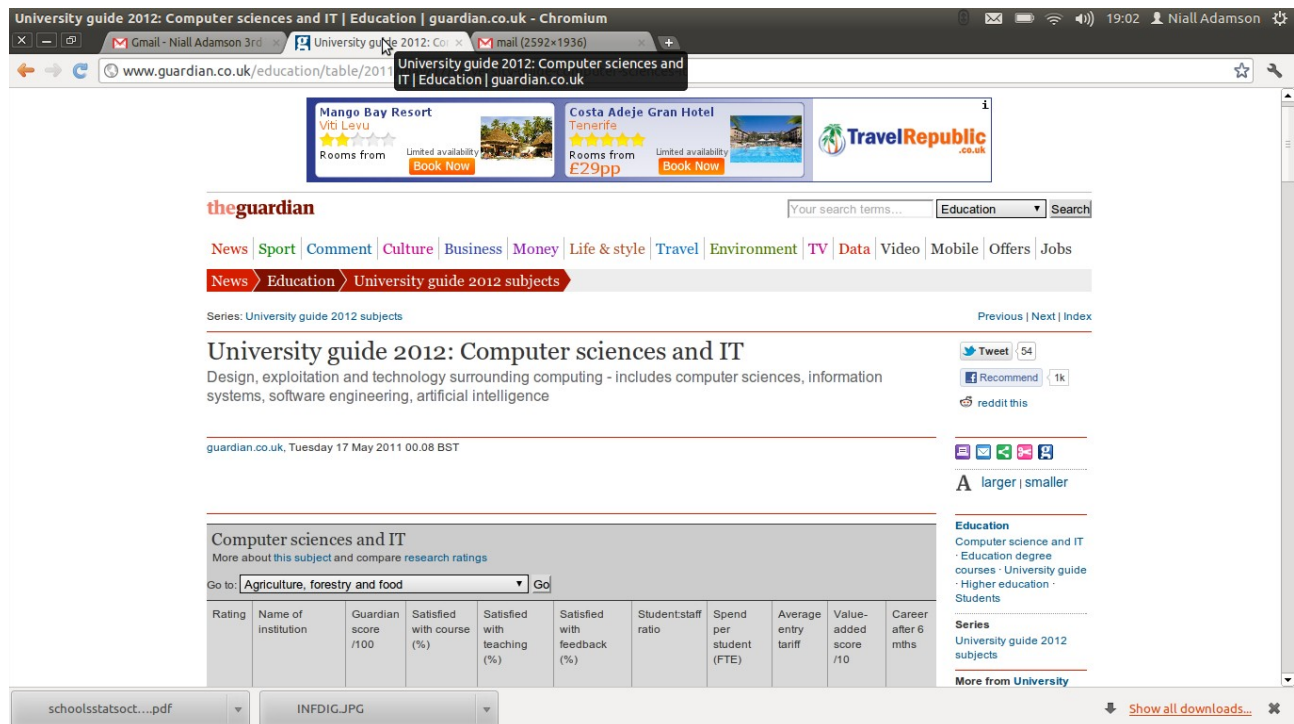Figure 2- Initial influence diagram.

Figure 3 – example page of NSS results.

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Figure 4 – example of Guardian league tables.

7. References

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