

# *edziekanat*

queue? no, thank you

Paulina Berdysz, Marcin Otorowski

## 1. DESCRIPTION OF THE PROBLEM

---

Feeling lack of time, trust to technology, having mind to discovering new things – this characteristics can be features of Y Generation, which is represented for example by students of universities. From their experience, a well known phrase has been paraphrased: „In student’s life only two things are certain – exam time and queues in dean office”. According to reality, this statement is indeed true. Students at



Rys. 1 Queues in dean office

Polish Universities – without exceptions – usually complain about dean office, pointing its ineffectiveness, wasting time by queuing even if asking about simple information, and problems with information flow.

The analysis we have done proves, that only a small fraction of daily jobs of workers of dean’s office actually requires physical presence. Other can be supported and replaced by using modern technologies of information society. Proper organization and technical solutions would allow to support efficiency by reducing duties, which can be easily done by computers, stronger usage of computers and telecommunication between students and clerks, availability of dealing with large number of things by internet. What’s important is, that solution of e-dziekanat is not really from unimaginable future – virtual dean’s office exists at many West universities, as well as at some of Polish high schools, which have implemented such systems.

### 1.1 THE MAIN PURPOSE

---

Workers in office usually do many tasks, which do not require eye-to-eye contact between clerk and student. For instance, much time is spent on choosing specialization classes, informing about common and repeatable information, entering

data from traditional sources into electronic databases. Additional constraint is inelastic and not student-friendly time of opening (4 hours during classes).

The purpose of our project is to improve and to introduce more innovative way of solving those problems. What's obvious, effectiveness is connected to having information. Implementation of virtual dean's office service allow to shorten required time of waiting in queue, improve quality and – most important – it allow to get all the information and documentation 24 hours a day, seven days a week. Project will also require fulfillment conditions of elements of Information Society.

## **1.2 DETAILED TARGET**

---

This is multidimensional project, involving following targets:

### **TECHNOLOGICAL:**

- to involve using computer to particular tasks of dean's office, implementation technology solutions where routine and simple works of human are performed.
- to reduce bureaucracy
- to make control of data more easy
- to make further improvements and making easy to implement electronic index and electronic ID card.
- to preserve data and security of data stored.

### **ORGANIZATIONAL:**

- reducing time needed for a task to be perform
- increasing efficiency at the unchanged level of employment and work hours
- ability to continues access to information and documentation without geographic and time constraints.
- to implement solutions, which are typical in UE

### **SOCIAL:**

- achieving higher level of trust to dean's office as institution

- improving relationship and communication between students and university

SPOŁECZNE:

- development of e-society conditions in group of students and employees of high school.

### 1.3 TERRITORIAL RANGE

---

Geographic area of this project covers The Faculty of Economics and Management of University of Szczecin. However, we should remember, that it is user who is the most precious and main part of system. Therefore, the geographic area only describes physical presence of computers and people dealing with them. Actually, the area covers the area where students live – although many of them live out of Szczecin or even abroad, they would still be beneficiaries of the project. For those students, eDziekanat would bring more convenience, because most of problems could be solve in their own house, whenever time they like.

### 1.4 ASPECTS OF INFORMATION SOCIETY

---

The features of Information Society involves:

- mass character of generated information
- technical abilities of collecting and storing information without constraint
- developing standards and technology, which allow to homogenous description and exchange of information.
- passing information without time and space constraints
- ability to receive information by all of participants
- common, open and unlimited usage of internet as a source of information

Our projects helps implementing and education features of e-society. Bear in mind, that this kind of system will lead to improving useful skills, including computer and social skills, which eventually can affect in future, for example by developing and improving e-society idea.

## 2.1 FINISHED SOLUTIONS IN POLAND

As oppose to many of universities in EU, where elimination of bureaucracy was successful (with a help of electronic signature), in Poland there are some barriers which do not allow to remove it. Every single application should be physically delivered, signed by hand, stamped, and then put in archives. This is a real problem as long as computerization is taken into account. The barriers are law as well as some social attitude (too low level of acceptance and trust to information technology).

Despite of that fact, there are universities which do have their own e dean's office. These are:

- Szkoła Główna Handlowa, Warszawa
- Wyższa Szkoła Humanistyczno-Ekonomiczna, Łódź
- Wydział Zarządzania i Ekonomiki Usług, Szczecin
- Akademia Medyczna, Warszawa
- Wyższa Szkoła Administracji Publicznej, Kielce
- Wyższa Szkoła Administracji i Zarządzania, Zamość
- and many others

Jesteś zalogowan(y/a) jako: **Krzysztof Kowalski**      Jeśli uzyskałeś potrzebne informacje [Wyloguj się](#)

Ćw/21/Z/ IS 01 (nr 21)  
Przedmiot: Matematyka dyskretna  
Forma zaliczenia: ZAO

Lista studentów  [Generuj](#)

Nazwisko	Imię	Nr albumu	Termin podst.		Poprawka 1		Poprawka 2		Egzamin komis.	
			Ocena	Data	Ocena	Data	Ocena	Data	Ocena	Data
Kowalski	ANNA	2166	4	2003-06-07						
Kowalski	EDYTA	2803	3	2003-07-06						
Kowalski	EWELINA	2183	4	2003-07-06						
Kowalski	GRZEGORZ	2186	5	2003-06-07						
Kowalski	GRZEGORZ	2193	5	2003-06-07						
Kowalski	IWONA	2155	3.5	2003-06-22						
Kowalski	JOANNA	2177	4.5	2003-06-21						
Kowalski	KAMIL	2185	3	2003-06-22						
Kowalski	KAROL	2910	3	2003-06-07						
Kowalski	KAROL	2159	3	2003-06-22						
Kowalski	KAROL	2211	3	2003-06-22						
Kowalski	LUCYNA	2204	4.5	2003-06-07						
Kowalski	LUKASZ	2170	3.5	2003-06-21						
Kowalski	MARCIN	2174	3	2003-06-07						
Kowalski	MICHAŁ	2147	4	2003-06-07						
Kowalski	MIROSLAW	2861								
Kowalski	PIOTR	2393	3.5	2003-06-07						
Kowalski	PIOTR	2195	3.5	2003-06-07						
Kowalski	PIOTR	2163	3	2003-06-22						
Kowalski	PIOTR	2169	3.5	2003-06-22						
Kowalski	PRZEMYSŁAW	2182	3.5	2003-06-07						
Kowalski	PRZEMYSŁAW	2178	3	2003-06-21						
Kowalski	WOJCIECH	2209	3.5	2003-07-06						

[Do indexu prowadzącego](#)

---

Rys. 2 Example screen of mark index

---

Generally, there are two attitudes to problem of eDziekanat. Some of universities have implemented their own systems, some of them uses ready-to-use external software. There are 3 main companies in Polish marker, which have developed their own systems. These are: APR Systems s.c., PH7 Computing and SmartMedia.

The advantage of using external software is shorter time required to implementation, higher level of security supported by experience of experienced producer and users.

Typical tasks performed by software (according to demo version):

- classes plans
- studies plans
- information about lecturers
- storing and maintaining data
- studies organization
- maintaining ranks and calculating statistics
- performing polls
- payments maintenance
- mass mailing
- for student:
  - browsing marks
  - payments history
  - classes history
  - studies history
  - files and documentation
  - polls
  - news and information
  - information about exams
- for teacher:
  - mass mailing
  - searching for students
  - information about classes

- generating reports

## 2.2 FINISHED SOLUTIONS IN OTHER COUNTRIES

### FINNLAND

Many Finnish universities implemented WebOodi – a system of service of Study Affairs Office:

- University of Helsinki
- Helsinki University of Technology
- Sibelius Academy
- Helsinki School of Economics
- University of Oulu
- Swedish School of Business Administration
- Theatre Academy of Finland
- University of Art and Design Helsinki
- University of Joensuu
- University of Vaasa
- University of Lapland and Turku School of Economics

**WebOodi v2.3**  
Kottarainen Brian Samuli,  
1000449

**Front page**

- ▣ Courses/Exams
  - Find teaching events
  - Study Guide
- ▣ My studies
  - Planned studies
  - Registrations
  - Results
  - History**
  - Transcript
- ▣ Other functions
  - Personal particulars
  - Term enrolment
  - Students
  - (E)Lk-ilmo valvonta
  - (E)Hinnaston ylläpito
  - Settings
  - My courses
- ▣ Interface
  - (E)Ilmoitusten ylläpito
  - (E)Tekstien ylläpito

**Study results**

If you experience problems or have any questions with respect to your course results, average mark or other study-related matters, contact immediately either via Email at [opinto@lut.fi](mailto:opinto@lut.fi) or by sending us feedback in the Feedback section.

[Add n event/ Register](#)   [Registration history](#)

[Planned](#) [Registrations](#) [Results](#) [History](#)

**History**

Here you can see all your studies that have been moved to history

Code	course name	cu	Grading	Date	Accepted by
<a href="#">020462000</a>	Fatigue Design	3.5	1	25.08.2004	Gary Marquis
Upgraded/Attempt to upgrade					
<a href="#">030166000</a>	Evaluation of Investment Projects	3	0	24.10.2003	Timo Kärrä
Failed					
<a href="#">010114000</a>	Mathematics L	5	0	07.06.2002	
Failed					
<a href="#">090717001</a>	Introduction to Leadership and 2-Work Community		H	02.04.2001	Department of Business Administration
Upgraded/Attempt to upgrade					

WebOodi allows to do such actions like:

- checking and changing personal data
- checking study attainments
- ordering transcripts of records
- planning timetables for studies
- registering for courses and exams

Similar systems exist in other countries – in France such solution was implemented at The University of Lyon, which also offers its software for other for a fee.

As oppose, East countries (like Ukraine) haven't introduced such solutions, because of bad finance condition and no trust to IT. Implementation would eventually make many people fired from their jobs, and this probably makes some objections.

### **3.1 THE CHARACTERISTICS OF THE RECEIVERS**

---

Our project is created for people and their needs. Because of that one of the main stage in preparation is define and characterize target group. This group consist of people who will gain profits from implementation this innovation.

According to main aim o the project, which is technical evolution of time and money-consuming activities, the receivers of the project are huge and heterogeneous group. In spite of that we focus on the largest subgroup of student.

In year 2006/07 on Faculty of Economic and Management University of Szczecin there were 2117 students

#### **Social Profile**

- Most of them lives in big cities
- They likely identify with other students belonging to their social group. It determines specify behavior and patterns
- Most of them are young (<25)
- Most of them are not married
- They prefer spending their time with their friend in active way
- They feel pressure to investing in their selves and their knowledge as the key for future success
- Part of them lives in parent's home, often in big cities



- It is the generation which spend a lot of time in front of computer screen. Computer became a useful tool of work, fun, study. Necessary for gaining information. it is hardly thinkable that they can live without it.
- consumptive way of life

### **Personal Profile**

- they can learn very fast. Technical and IT aspects are easily understandable for them
- likely to trying something completely new and unknown
- they seems to be more trusting in new technology, machines than in people
- open for others and creative
- they look up for solutions which make their life easier
- complain for permanently lack of time
- they are wiling to work in group o people, specially with young one.
- Challenging for all aspect of life

### **Economic profile**

- Not very rich
- Without permanent work. Part of them works on contract in summer season, or illegally.
- They control their expenses, compare offers
- small amount of money from fixed sources like family, scholarship, small wages from work
- open for advertisement
- live they life in accordance to new trends
- most of them have student's bank accounts with opportunity to transfer money using internet
- active way of looking a job in our country and abroad
- likely to sacrifice their free time to work and earn money

## **3.3 GEOGRAPHIC AREA WHERE RECEIVERS LIVE**

---

The Faculty of Economics and Management of the University of Szczecin is a public institution, which gives opportunities for people to study without age limit, who have polish nationality or permission for residents and after Maturity Exam. It means that receivers of the project might be from any part of country, on condition that they study in Szczecin, and use eDziekanat through the internet – wherever they want.

Thanks to many international co-operation programs the geographic area of the receivers become wider. Nowadays our University take part in programs like Socrates/Erasmus, and we a guests from Finland, France, Germany and Italy.

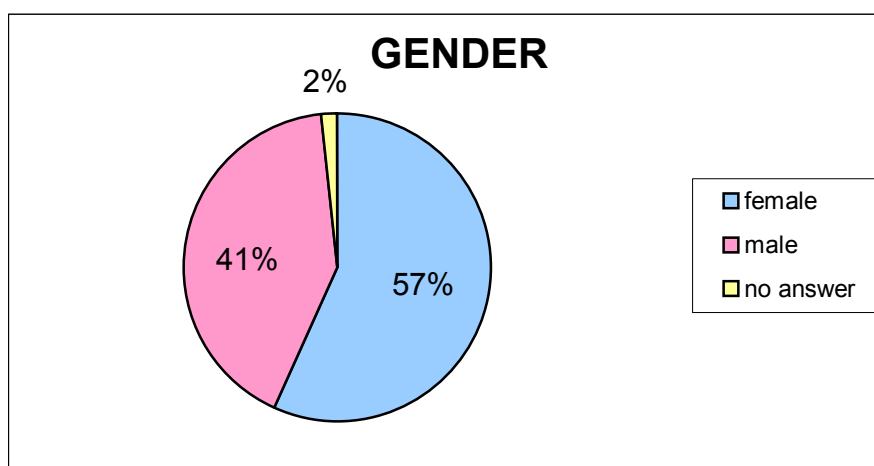
Research workers from other countries take part of the LAMA exchange and they teach in our faculty. Main LAMA partners are Lithuania, Ukraine, Germany, Switzerland and France.

This and may others aspects make it easier to understand that project of eDziekanat become necessary. Procedure facilities, wider access to information are indispensably.

#### 4 IDENTIFICATION OF RECEIVER'S NEEDS

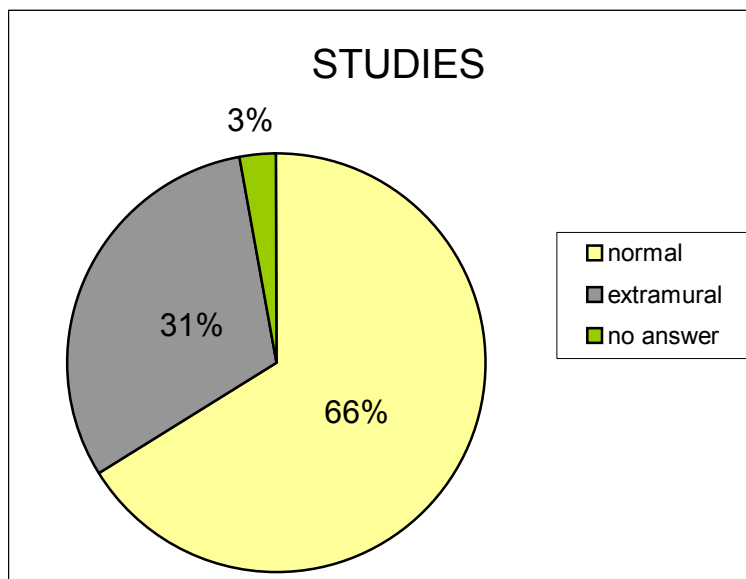
Analysis of needs of beneficiaries is based on a base of examinations carried out by the Department of Marketing in the Faculty of Economics and Management of the University of Szczecin, at the beginning of the academic year 2006/07.

BASIC INFORMATION				
GENDER	Number	Percent	% of valid	% cummul.
Female	222	56,8	57,8	56,8
Male	162	41,4	42,2	98,2
No answer	7	1,8	100	100,0
<b>Sum</b>	<b>391</b>	<b>100,0</b>		

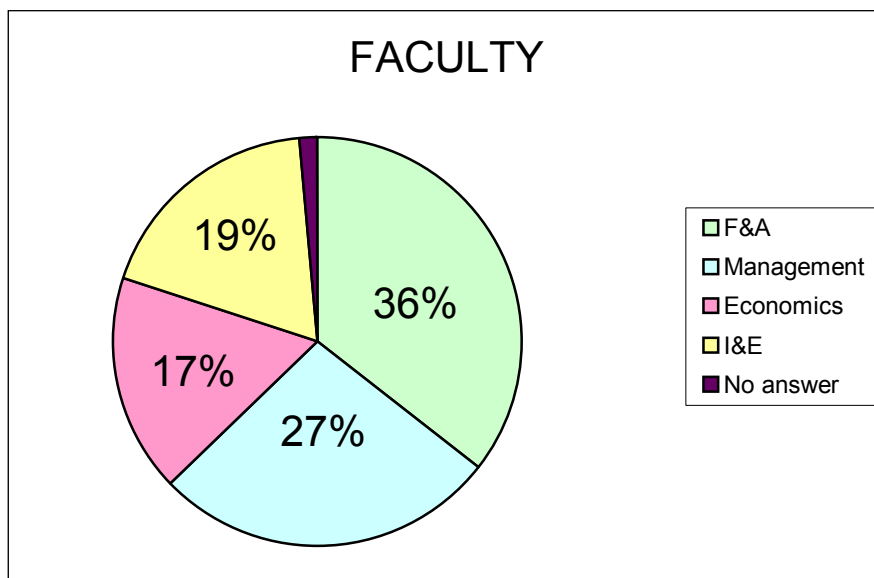


KIND OF STUDIES	Number	Percent	% of valid	% cummul.
Normal	259	66,2	67,4	66,2
Extramural	121	30,9	31,5	97,2

No answer	11	2,8	<b>100</b>	<b>100,0</b>
<b>Sum</b>	<b>391</b>	<b>100,0</b>		

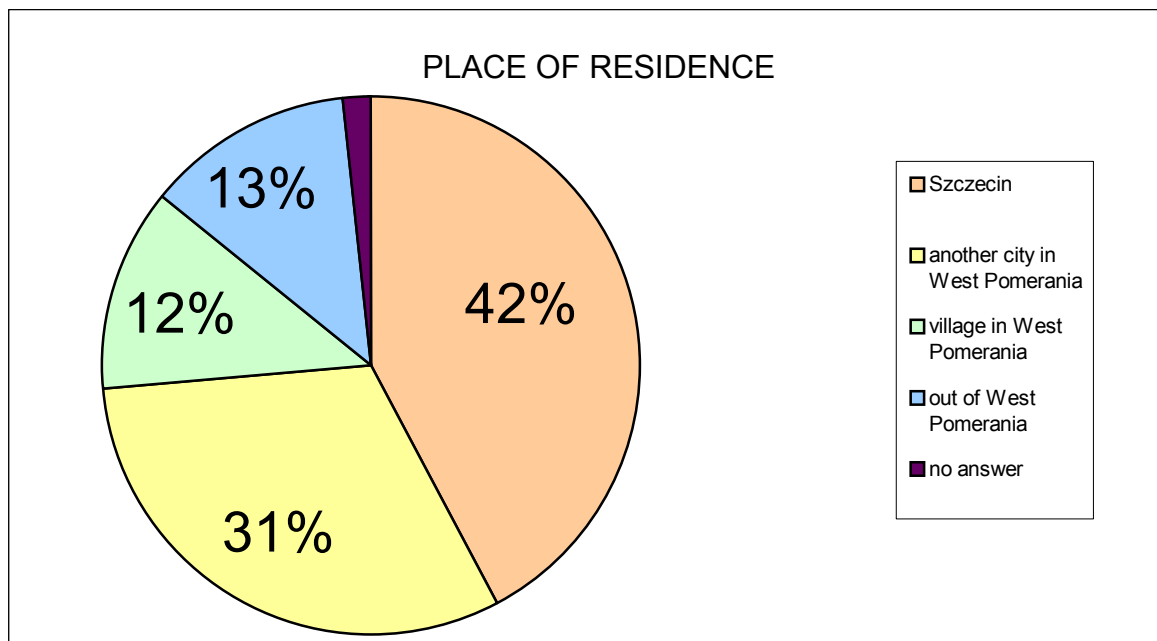


FACULTY	Number	Percent	% of valid	% cummul.
F&A	139	35,5	36,2	35,5
Management	106	27,1	27,6	62,7
Economics	68	17,4	17,7	80,1
I&E	73	18,7	19,0	98,7
No answer	5	1,3	<b>100</b>	<b>100,00</b>
<b>Sum</b>	<b>391</b>	<b>100,0</b>		



PLACE OF RESIDENCE	Number	Percent	% of valid	% cummul.
Szczecin	165	42,2	43,0	42,2
Another city in West Pomerania region	123	31,5	32,0	73,7

Village in West Pomerania region	48	12,3	12,5	85,9
Out of West Pomerania	49	12,5	12,8	98,5
No answer	6	1,5	<b>100</b>	<b>100,0</b>
<b>Sum</b>	<b>391</b>	<b>100,0</b>		



We have also asked students about their evaluation of performance in dean's office. These are results:

<b>question 8</b>				
<b>Evaluation of performance of dean's office</b>				
	<b>number</b>	<b>%</b>	<b>% cummul.</b>	<b>% of valid</b>
Very good	48	12,3	12,3	12,5
Good	145	37,1	49,4	37,9
Average	131	33,5	82,9	34,2
Rather weak	40	10,2	93,1	10,4
Very bad	19	4,9	98,0	5,0
No answer	8	2,0	100,0	0,0
<b>Sum</b>	<b>391</b>	<b>100</b>	<b>100,0</b>	<b>100,0</b>

Taking the fact that students which took part in research don't have big experience with the deanery at work because they study only for 1 year, and taking into consideration negative opinion from student take highest but more pessimistic results with which an assessment is „average evaluation for dean's office work”

A next (open) question is an additional source of information set the same group:

<b>Question 8A</b>		
<b>Proposal of changes from student's point of view:</b>		
	<b>Number</b>	<b>%</b>
Wider time of opening	25	20,00
Kind clerks	19	15,20
Better and more professional performance	17	13,60
Better organization and atmosphere	16	12,80
Reducing queues	12	9,60
Faster informing about cancelled classes	9	7,20
Informing more clearly	8	6,40
More clerks	5	4,00
Shortening time required to accept applications	4	3,20
Picking up the phones	4	3,20
Enlarging service window	1	0,80
Opening another point of service	1	0,80
Presenting summer job offers	1	0,80
Approving electronic bank transfers	1	0,80
Informing about tutor	1	0,80
Other	1	0,80
<b>sum</b>	<b>125</b>	<b>100,00</b>

According to results of the survey above most problems are with flow of the information in the relation office-student, bad organization of the work in the dean's office and not good atmosphere resulting from the disproportionate number of student to the number of workers of the dean's office. Reason of the majority of the erroneousness is too many matters being a burden to a small number of persons working there. It is a cause of the slope for the effectiveness and the quality of provided services and increasing the probability of mistakes and misunderstandings.

An interview carried additionally with workers of the WNEiZ dean's office is confirming above proposals

1. What is the most time-consuming for you at work?
  - Input grades from paper form to the electronic one
  - Input essential data into applications, proposals and other documentation
  - Input other kind of data
  - counting and testing calculations manually
2. Where the most problems are appearing? What are they resulting from?
  - mistakes in applications of students (the inattention and the slackness of the person who is typing informations)
  - problems resulting from giving documents and proposals after the time
  - mistakes in counting the average (it is necessary to check it manually)
3. What about your skills in the service of the computer and the Internet?

- Fluently, without any problem
4. What is your opinion about idea of eDziekanat?
    - This plan will make our work more productivity and efficient, however there are duties which cannot be replaced with the work of the computer. To sum up – it can be only easier.
  5. What is it possible to simplify through the computer and the Internet explicitly and easily?
    - registration for classes to choose
    - dean's office news
    - taking printed patterns of applications (ordering by the Internet)
    - filling applications
    - moving duties like putting grades into data base from dean's office workers to reasech workers
  6. What questions do students most often ask?
    - until when to make an application?
    - when is the holiday break?
    - when the week is above, and when under the line?
    - when will the scholarship be received?
    - the payment dates
    - conditions of the second term of an exam

It is worth to point out, that question from students, included in point 6 may be easy eliminated by creating an internet base of most frequent questions, which would be regularly updated.

## **6 . OFFER FOR BENEFICIARIES**

---

### **ADOPTED SOLUTIONS**

The simplest method is to use external software from specialized firms. Comparison of features has been described in Chapter 4. The problem in case of existing software is, that it generally cannot be modified (or it is very hard to do this). This make no possibility to adapt, change and modify software to specific needs. Therefore, in long run it seems that own software could be much more effective. This is very important, taking into consideration our innovative conception, which is described in next chapter.

### **INNOVATIVE CONCEPTIONS:**

The biggest problem in implementation is bureaucracy. Requirement of hand signature, stamping and archiving causes many barriers in implementation of electronic keeping documents.

Electronic signature requires many additional actions, such as acceptance of lawyer, university authorities, multidimensional analysis according to law and organizational structure, special software etc.

The solution, which is a kind of settlement between traditional documents and electronic ones is a dualism in keeping records – in paper form and in electronic one.

The scheme is as it follows:

- 1) Users logs in
- 2) Users chooses specific kind of application
- 3) Personal data are automatically filled in by system, in some cases the content of applications also can be generated
- 4) User provides some additional required information to a form
- 5) System performs verification of data, and alerts if error has been found
- 6) Application is saved to database, system generates PDF document, which should be printed, signed, and left in office
- 7) Each document received it's own unique ID, so user can track the progress.

Clerk in office does not need to check application (because it has already been checked). The problem is that this kind of solution requires either to write own software, either make changes in existing one, which may not always be legal. Nevertheless, this kind of dualism will lead to more fluent flow of documentation in fully legal form, fulfilling bureaucratic rules.

### **ANALIZA SWOT**

	<b>Positive aspects</b>	<b>Negative aspects</b>
--	-------------------------	-------------------------

<b>Internal aspects</b>	<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>- acceptance of students and clerks 3</li> <li>- benefits, including time nad money saved 5</li> <li>- easy and improved access 3</li> <li>- modular project, easy to develop and improve 2</li> <li>- no geographical constraints 1</li> <li>- flexibility 2</li> <li>- improved information flow 5</li> <li>- less errors and mistakes 4</li> </ul> <p><b>=25</b></p>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>- capital needed 5</li> <li>- much labor needed 4</li> <li>- long time of implementation, testing and establishing 3</li> <li>- requirement of data controlling 3</li> <li>- fallibility of hardware 4</li> </ul> <p><b>= 19</b></p>
<b>External aspects</b>	<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>- existing projects, benchmarking is possible 5</li> <li>- constant number of users 4</li> <li>- no need to promote and advertise 4</li> <li>- technology availability 3</li> <li>- fulfill statements of e-society 1</li> <li>- internet society 4</li> <li>- increased prestige 4</li> </ul> <p><b>=25</b></p>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>- bureaucracy 5</li> <li>- population decline, emigration 3</li> <li>- threats from hackers and breaking into the system 5</li> </ul> <p><b>=13</b></p>

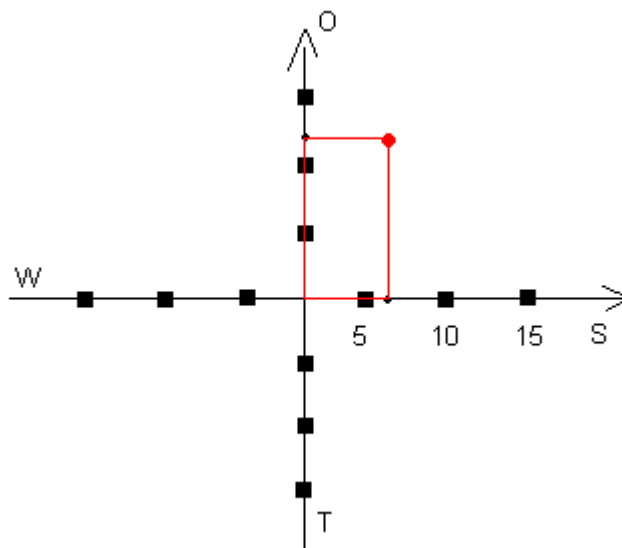
$PR = 25 / (25 + 19) = 0,57$

$AR = 25 / (25 + 13) = 0,65$

MAXI-MAXI strategy

$PSS = (0,57 + 0,65) / 2 = 0,61$

61 % of success





## **STAKEHOLDER ANALYSIS**

For this project, we can assume dean's office is included into stakeholder's group, as well as authorities of FEaM and research workers. These are subjects to be influenced by implementation of eDziekanat, and affect the system as well.

From this point of view, the most important role is taken by authorities, due to their function and abilities. Dean as a representatives of authorities is deciding the most key things, usually strategic. It is he who is responsible for granting funds flowing from Faculty funds. Research workers and dean's office clerks are also very important, cause will be directly connected to the system, by co-creating and co-maintaining.

- dean's office <- strongly supporting
- faculty authorities <- pessimistic
- teachers <- possible objections (new duties)

During preparation period, the most positive adjustment to project is declared by dean's office, as this project is about to improve its work and save its time.

Authorities, although project may bring many advantages and prestige, have rather small objections, because of cost that must be taken. Also, we expect objections from research workers, as one of the method of improving work is to move some duties (like entering marks to database) to them. To make this group more positive to the content of project, we should concern about detailed information about conception and pointing out, what are the long term benefits from this. Also, a training for them must be organized, so new duties will not be huge burden for them. Specification of training is listed in one of next chapter.

## **7. PROMOTION, MARKETING AND ADVERTISING**

---

This project does not need to be advertised and promoted externally. Group of receivers is constant and close, all the promotion activities should be rather dedicated to inform that this service exists, and how to use it.

The main method of informing should be obviously the internet. This is cheap and most efficient way of delivering information about service.

Special dedicated page should describe the system, its features, logging and example actions “how-to’s”, frequently asked questions (FAQ). If dualism of documentation is implemented, the website will also include description and instruction of applying, determining progress etc. Everything should be searchable by built-in search mechanism.

The interface should be available both in Polish and English, so as foreign students can use it without language problems.

The other thing considered now is training, which should be done at the beginning of each academic year for first-year students. Presence at this training should be required at the same rules as librarian training is. This will make sure, that everyone knows how and where to use eDziekanat.

Training should include:

- introduction and basic information
- how to get login and password
- description of features
- demo of some action (like posting application)

Training should done in computer classrooms, presentation can be either present on video projector or on monitors, so as each student can have a clue how to login, and where to click in case of need.

## **PROMOTION ACTIVITY COSTS**

Costs of promotion activity includes

- cost of maintenance server with help instructions
- wage for trainers

Cost of maintenance will be estimated in next Chapter, because it seems to be reasonable to keep eDziekanat and help pages together.

Also, a training of dean's office staff will be needed, as well as research workers. The trainings can be done either by external trainers (if software was bought), or either by programmers or manager of project (if it was written by university employees).

Training should last about 2-3 hours, participants should be trained and got to know with maintenance of eDziakanat. Trainings for research workers, due to low level of potential pitfalls can be done electronically (for example by e-mail).

Average number of students to train is 500, so we will need approximately 15 one-hour trainings, each for 30 students, 2 by one computer.

After all, the analysis of costs make us set it at the level of 400 PLN for training 4 clerks, and 700-1000zł for people, training students (conditions made before).

## **8. TECHNICAL ANALYSIS**

---

### **SOFTWARE**

The simplest and most efficient way would be writing own service in PHP language, combined with MySQL database. This is certain, free and secure combination, and plenty of advantages is supported by number of usage (most of internet web portals and databases solutions use it). The alternative can be fast and stable PostgreSQL. In order to keep the stability of software, it should be run under UNIX server in Apache environment. There are plenty of ready-to-use solutions, with packages containing all of required stuff, which allow to keep ability to use resources without problems and constraints.

### **HARDWARE**

The best situation would be, if eDziekanat were run on special, dedicated server. This brings plenty of advantages, easier maintenance due to independent hardware. The calculation power of typical modern computer will be enough to maintain queries from even large number of users at the same time.

Typical configuration to run e-dziekanat

- Intel Core 2 Duo E4300, 1,80Ghz processor

- Dual Core Technology, xD-Bit
- RAM Memory 1024 MB
- Hard disk 250 GB

Cost of such configuration will vary about the level of 2500PLN. Such configuration should be enough to successfully run the service, and work with larger amount of users at the same time.

## **SECURITY**

- Server should be safe in closed room, with no access of third-man. Usually, optimal solution is a server room, which is adapted to keep hardware and to its conditions. Proper ways of security prevent users from unauthorized access and data modifications.
- Regularly performed backup will prevent from losing data due to random events. Daily backups on DVD should be stored in a period of one semester (at least half a year).
- Using PHP technology, provided that headers are properly encoded, source code is safe. The only situation when it could be revealed would be physical access to server room (see point 1).
- All kinds of operations should be save in logs. This will make easier to identify potential pitfalls and their sources. Logs should be stored for at least one month.
- A good firewall (either hardware or software) should prevent from being attacked by viruses, Trojan horses etc. The hardware solution however will also mean higher costs.
- Access should be granted according to verification of login and password. Each of them should be not connected to any of student personal data, and default password should be safe (example login: 122142, password: aas?4%nG). A possibility of changing password should be available, but system should first check if it is safe, has proper length ( $\geq 8$  characters) and is composed of not only alphanumerical characters.
- Default logins and passwords should be stored in closed envelopes to receive in dean's office, with the authentication of Identity Card.
- SSL connection should be kept during session

- Data can be browsed either by its owner (student) or super-admin of the system. People entering data (marks) should not be able to see private data, just the number of ID card)

### **COST OF SECURITY**

Firewall can cost even some hundred PLN, but there are fully functional and free programs to download from internet. However, cost of maintenance security will consist of cost of maintenance the server room, cost of printing materials (envelopes, starters), cost of DVD discs or other external disks used to keep logs and backups.

Total costs should not be higher than 300-400zł. Loosing data will theoretically be higher cost, as we should assume no possibility to restore back-up data, need for thousand of users to relogin for a first time, breaks in fluency of jobs of dean's office, higher maintenance costs etc.

## **9. ESTIMATION OF EFFECTIVNESS**

---

### **INDICATOR AND ESTIMATION METHODS**

To successfully estimate and check effectiveness of project, we should collect some data before and after implementation of the system. The main target, which is improving effectiveness, consists of such aspects like:

1. widening access to information
2. reducing amount of time spent on typical, routine things of clerks in dean's office
3. enlarging the level of trust to the institution

Methods :

#### **Statistics of visiting to dean's office for answer to questions.**

We choose one month (close to exam term), to count how many students come to office a day (special measurement papers should be provided to clerks, who can easily mark the number of visits). Then, compare to results after implementation of e-Dziekanat.

### **Measuring time a single clerk needs to deal with particular task**

We choose one typical activity, which takes much time, like entering marks and filling worksheets with data. We measure time it takes to deal with one student's mark, multiply by number of students, then repeat this measurement after implementing eDziekanat.

### **The poll for students**

The poll should be done before and after implementation, and the group of students should be the same. We ask them about their personal feelings about new project, how they evaluate efficiency and atmosphere. Also, students are about to be asked if implementing eDziekanat really has any effect, and if it solved problems or inconveniences.

Besides these information, it is important to track on-line statistics on web page after the implementation, according to division to months and hours. This will give information about utility and popularity of new solution.

### **MEASUREMENT SCHEDULE**

1. 1 – 31st May 2007; 1 – 31st May 2008
2. Summer semester 2007; 2008
3. March 2007, March 2008
4. on-line statistics generated by server (provide information about number and density of visits)

### **MEASUREMENT PATTERNS**

Each of measurement should consist of at least 5 questions about different aspects from such categories like: atmosphere, evaluation of effectiveness, speed and quality of service, finally year of studies, gender and approximate number of times the person have used eDziekanat/dean's office.

Results should be collected to database, and interpreted either by charts in Microsoft Excel, either Statistica application.

These methods of measurement should be repeated twice year-to-year, because in 2nd year after implementation students and participants as well will get used to the system and know it better, which will give more accurate results.

The result should be reduced time on typical, simple things, improved flow of information and reduced queues by the dean's office. The poll will also lead to knowledge about how introduction of new technology of e-society influences common life and typical tasks and services offered by dean's office.

## **10. PROJECT SCHEDULE**

---

Preparation phase and part of realization phase should be performed during summer 2007 vacations. Establishment should be done at the beginning of academic year (October 2007), trainings for students and lecturers should be done in October and November. In March 2007 (half year after implementing) and March 2008 (a year after implementing) a control measures should be performed. This is more detailed schedule:

<b>phase</b>	<b>time</b>	<b>action</b>
preparation	Till the end of July 2007	Installing hardware
	Till half of August 2007	Installing and testing software
realization	15-30 September 2007	Trainings for clerks
	Till end of September 2007	Printing envelopes and starters
	First week of October	Trainings for students

	October 2007	Receiving starters
	November 2007	e-training for lecturers
monitoring	March 2007	Monitoring polls (students)
	March 2008	Monitoring polls (students)

Schedule is however elastic, so periods of specific actions can be moved or stretched.

## 11. ECONOMIC ASPECTS

Expenditures can be calculated in two different cases, depending on the way of implementation we choose. This is why they have been split into two different tables:

### CASE 1

Involves writing own software

Cost related to personnel:

- training 700-100zł
- administration (1/8 time) 300 PLN monthly
- 3 x programmers, total expenditure 5000 PLN

Cost related to final receiver

- printing starters and envelopes 2000 x 0,10 PLN (in 1st year)
- printing starters and envelopes 400 x 0,10 PLN (following years)

Other

- hardware 2500 PLN
- operating system and system software 0 PLN
- security costs 300-400 PLN



total costs in 1st year: up to 15 300 PLN  
total costs in following years: up to 7000 PLN

## **CASE 2**

Buying software from professional company

Cost related to personnel:

- administration (1/8 time) 300 PLN monthly

Costs related to final receiver:

- printing starters and envelopes 2000 x 0,10 PLN (in 1st year)
- printing starters and envelopes 400 x 0,10 PLN (following years)

Other:

- software 2500 PLN
- operating system and system software 0 PLN
- security costs 300-400 PLN
- e-dziekanat software 8400 PLN

total costs in 1st year: up to 18000 PLN  
total costs in following year: up to 7000 PLN

## **FINANCING:**

All the costs, due to lack of possibility of having profits or sponsors should be financed by own capital of university. There is also however possibility of getting funds from one of European structural funds.