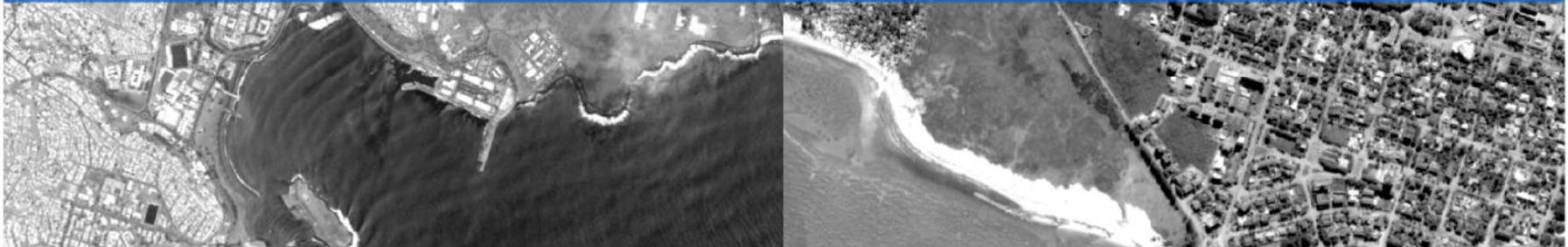




Sustainable Geographic
Information Knowledge Transfer
for Postgraduate Education

Geographic Information Knowledge Transfer for a Sustainable Postgraduate Education



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ISEGI > NOVA
Instituto Superior de Estatística e Gestão de Informação
Universidade Nova de Lisboa



UNIVERSIDADE
LISBOA
uni3

 **ESRI Portugal**
Sistemas e Informação Geográfica



SUMMARY

1. SuGIK's scope
2. The SuGIK Consortium
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4. Proposed Approach
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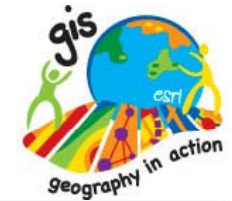


Program funded by the European Union and implemented by the African, Caribbean and Pacific Group of States Secretariat **to improve and strengthen the capacity of ACP Higher Education Institutions** at three constitutive levels:

- Institutional / administrative
- Academic
- Research and technology strengthening

SuGIK – Submitted to the EDULINK 2nd Call for Proposals (October 2007)





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Lead Institution

Instituto Superior de Estatística e Gestão de Informação Universidade Nova de Lisboa - ISEGIUNL (Portugal)



Partner Institutions

Universidade Católica de Moçambique – UCM (Mozambique)



Universidade de Cabo Verde – UniCV (Cape Verde)



Associate Institution
ESRI-Portugal



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Overall objective

Develop, implement and disseminate a best practice model consortium of EU-ACP Higher Education Institutions (HEIs) for the institutionalization of GIS&Science Master Programs in Cape Verde and Mozambique

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Specific objectives

- Enhance the overall management, academic, and technological capacity of UniCV and UCM, in order to support the transfer and the implementation of the three editions of a GIS&Science postgraduate course.
- Support target HEIs with training, quality standards, resources and technologies.
- Provide scope for mutually beneficial structural and educational development in a perspective of long-term collaboration, allowing other network co-operation initiatives and further study and skills transfer opportunities between the partners and other European institutions.

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1. Enhancing post-graduate administration capacity

- SuGIK's first set of activities will aim at strengthening administrative and technical capacities of the partner universities to effectively implement a distance Master's program in GIS&Science.
- To this end, a management and administration model will be developed in cooperation with the ISEGIUNL.

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2. Adapting European curricula to African reality

- The ISEGIUNL's GIS&Science postgraduate program will be adapted to the needs and realities of the labor market in Mozambique and Cape Verde.
- During the project's first year, the partner institutions will conduct a regional and local study on the necessities of professionals in different activities in the areas of geographic information.

This will help to identify the specific competencies that the GIS&Science postgraduate course should promote and ensure an efficient reformulation of the contents that must be proposed for the 2nd and 3th editions of the course.

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3. Delivering a self-sustainable Master's programme

- The postgraduate course will be organized into two semester modules distributed through five learning areas.
- During the first year, the course will be taught by ISEGIUNL teachers to a group of selected students from both partner institutions.
- In the second year this course will be given by ISEGIUNL teachers in a partnership with selected students from the 1st edition of the course.
- Lastly, in the third year of the project, all teaching activities will be carried out by the best students of the 1st and 2nd editions of the course.

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4. Meeting geoinformation professional needs

- Upon completion of the Master's program, students will be able to apply their knowledge in key scientific and technological fields considered strategically relevant to support decision making in key social and environmental development areas.
- In a broader sense, SuGIK will benefit the communities in Mozambique and Cape Verde as government departments, local authorities, private companies or NGOs will be able to recruit highly qualified researchers and GI professionals to analyze key issues in disaster prevention, health, public safety, among others.

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1 st SEMESTER	2 nd SEMESTER	3 rd SEMESTER
Geographic Information System and Science	Remote Sensing	Dissertation
Geospatial data models	GIS and Modeling	
Geographic databases	Geospatial Data Mining	
GIS Applications	Community GIS	

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Target groups:

- Senior management and faculty staff of the GI partner institutions departments
- Graduate students in Geographic Information relevant areas
- Target professional in local and regional government departments

Final beneficiaries:

- Community Based Organisations
- Local authorities
- Research organisations/Researchers
- SME/SMI businesses which rely on the use of geographic information

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1. GIS&Science Postgraduate Diploma/Master Degree Certification - 40 students of UniCV and 60 students of UCM
2. Development and implementation of a Management and Administration Model for GIS&Science postgraduate education in the partner institutions
3. Training of, at least, 8 teachers in each one of the partner institutions. Upgrading and enhancing the qualifications of teaching staff and administrators of the two ACP HEIs.
4. Re-design and Implementation of the 8 current modules of the ISEGIUNL's postgraduate course
5. Creation of a Quality Assurance Board and provide target HEIs with a best practice model and adequate methodologies, guidelines, and tools to develop, improve and consolidate the existing academic network between EU and ACP Portuguese-speaking countries.

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Activity Area 1: Project management development

Activity Area 2: Administrative and organisational project implementation

Activity Area 3: Implementation and Delivery of the 1st edition of GIS&Science Postgraduate Course Training Activities

Activity Area 4: Reformulation and design of the GIS&Science Master Program and didactic preparation of the *curricula* content for the 2nd edition

Activity Area 5: Support a self-sustainable GIS&Science postgraduate programme delivery and innovation during the 3rd edition

Activity Area 6: Promotion of cooperation between EU and ACP Portuguese-countries HEIs in the field of GIS&Science education and research

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1990 ○ Annual GIS Seminar

1993 ○ **GI as part of a course** – Statistics and Information Management Undergraduate Program
GI as an autonomous course – Statistics and Information Management Master Program

1995 ○ **GI as an autonomous course** – 2 years Undergraduate Program

1998 ○ **GI in Post-Graduation Program** – Demographical, Social and Geographical Information Systems

1999 ○ **GI as an autonomous course** – 4 years Undergraduate Program

2002 ○ **GIS&Science Master Program (UNIGIS)** – 1st Edition

2003 ○ **Program eduGI-A – EC ALFA program, No. II-0250-A-PI**
 Some facts on the ISEGI's Master program in GIS&Science (e-learning)

2004 ○ **GIS Master Program Revision – Bologna Process / Novel Learning Project**
 Takes advantage of the acquired know-how in several years of GIS teaching

- Takes advantage of the synergies created by the UNIGIS consortium

2005 ○ **Program eduGI-A 2 – EC ALFA program, No. II-0426-ALF-I**
 Fully available through the internet since 2002 (1st edition)

2006 ○ **GIScience Curricula Development Model**
 First on-line master course given by a Portuguese university

2006 ○ **Program eduGI – EC program No. LAO2500-DE-PI**
 Directed at people who may not have access to face to face teaching

2007 ▽ **Master Program in Geospatial Technologies** – EC Erasmus Mundus Program
 The 8th edition will start in September 2008



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SuGIK's identity: design studies

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SuGIK's Portal: design studies



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Novidades
Contactos
Links
Mapa do Portal

Projecto SuGIK	Curso de Pós-graduação e Mestrado C&SIG	Curso de C&SIG na UnICV	Curso de C&SIG na UCM	Log in
	<ul style="list-style-type: none"> Objectivos do Curso Destinatários Plano de Estudos Protocolos Perguntas Frequentes 			<p>Novidades</p> <ul style="list-style-type: none"> ▶ Lorem ipsum veri aperiri volutpat at ius, mellus scaevola lobortis vis no. Sea agam nullam scripsert ei, at veri adipisci repudiandae duo, vel facilis deserunt ex. Vel audiam aliquid ne. ▶ Mea mutat integre at, ei dicam aperiri accusamus pri, ius impedit graecis fabellas ex. Diam homero veritus te has. Cum ut enim assum aperiam ▶ Ad modo pericula vis, ei dicat aperiri fierent vis. Vix oratio diceret vivendum cu, inani discere epicuri te sit. Ius novum elitir nemore ea. Duo erant dissentias ei, vim posse numquam ceteros ea. ▶ Sea delicata voluptaria dissentias ex. Qui vero tincidunt in. Id zzril.

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SuGIK's Master Program: Course re-design and contents adaptation

CIÊNCIA E SISTEMAS DE INFORMAÇÃO GEOGRÁFICA	NOVA @Learning
Espaço geográfico e cognição espacial	e-book

3.3 MAGNITUDE

A terceira primitiva do conhecimento espacial está directamente relacionada com as duas anteriores. De facto, após determinada a identidade e a localização de uma ocorrência uma série de questões costumam ter lugar: Qual a MAGNITUDE da ocorrência nesse lugar? É essa ocorrência elevada? Volumosa? Pesada? Por outras palavras, de que modo é transmitida e comunicada a natureza de uma ocorrência num dado lugar? Para Gooledge (Jdem) a resposta a estas questões força-nos a abrir a "caixa de Pandora": Quais as escalas de medida mais adequadas para expressar essa magnitude? Por oposição ao exemplo apresentado na Figura 5, podemos constatar a importância da utilização apropriada das escalas de medida para exprimir a MAGNITUDE de uma ocorrência e para o seu correcto entendimento e significado.



Figura 5 - Um letreiro da cidade de New Cuyama na Califórnia. Um exemplo que põe em evidência a importância da MAGNITUDE e do uso (adequado) das escalas de medida para o conhecimento das ocorrências espaciais. (Extraído de Christman, 1997, p.15).

3.4 TEMPO

A última primitiva necessária à construção de conceitos espaciais é o TEMPO. De um modo geral o tempo decorre da necessidade de traduzir o carácter efémero, mutável e inconstante de um determinado fenómeno (Figura 6). Conhecer a frequência e o modo como essas mudanças ocorrem é um dos factores determinantes à representação adequada das ocorrências do mundo real. Por esse

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motivo o raciocínio espaço-temporal em SIG tem vindo a merecer crescente atenção nos meios académicos e de investigação na área da Ciência da Informação Geográfica (Coudalis, 1999; Goodall, 2004; Ott & Swiaczny, 2001).

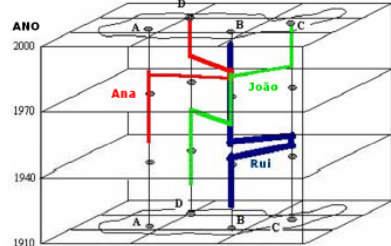


Figura 6 - A importância da dimensão temporal e espacial para a descrição dos fenómenos do mundo real. Três pessoas, com percursos temporais e espaciais distintos, que num determinado momento e lugar se cruzam. Adaptado de: D. Wright, 2006.

3.5 CONCEITOS DERIVADOS

De uma maneira geral, e apesar de dificuldades várias (algumas delas já avançadas nos quatro pontos anteriores), é possível definir uma ocorrência em termos da sua identidade, localização, magnitude e existência temporal. A partir destas primitivas poderão ser derivados conceitos considerados fundamentais para a representação espacial que tendem a assumir grande relevância na concepção e desenvolvimento dos Sistemas de Informação Geográfica (R. G. Gollidge, 1994):

- » com base na identidade podemos derivar conceitos como CLASSE ou CATEGORIA;
- » da propriedade magnitude é possível extrair conceitos como HIERARQUIA ou FREQUÊNCIA;

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Doubts Comments Suggestions?

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