

# Final Report

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## **Development of a distribution and training concept for the flood protection management system “INGE – interactive risk map for municipal flood protection”**

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UND GEOLOGIE



## Introduction

In the context of the INTERREG IV B project “LABEL – Adaptation to flood risk in the Labe-Elbe river basin” the media centre at the Dresden University of Technology has been assigned to elaborate a concept for the further developed flood protection management system “INGE – interactive risk map for municipal flood protection” that is aimed at investigating how on the one hand the further distribution and commercialisation of the INGE software might be supported, and how on the other hand it can be ensured that the employees using it dispose of the required knowledge and skills for the effective and efficient use of the software (also in the event of a disaster).

At the time of the present reporting the software INGE is used by numerous cities, municipalities and institutions in Saxony and Thuringia. The competent ministries are deeply interested in increasing the number of users and of places where the software is used. For this purpose, in the city of Berga/Elster (Thuringia) a place of reference for the use of the software INGE in Thuringia has been installed. Additionally, in the past the software was handed out to former project and cooperation partners in Slovakia, Romania and Hungary. This was possible due to the multi-language user interface of the software.

For the preparation of the concept it was also to be taken into account that the possibilities of use of the software INGE exceed the pure flood protection management, and allow for manifold contingency planning scenarios. So, the whole functionality of the interactive risk map can also be used for the purpose of contingency planning for heavy snowfall, strong wind events, accidents involving hazardous goods, mass events, emergency supply of drinking water, use of fire hydrants, and other scenarios.

Due to the diversity of the possible scenarios of application the software INGE generally is appropriate for the use in all municipalities and by all public agencies. No licence or user fees accrue for the use of the software INGE.

## Target group definition

In order to prepare the concept and to create its basis, in a first step the target group has been analysed. The relevant data were gathered by means of qualitative methods of data collection. In doing so it became evident that the target group is very heterogeneous with respect to fields of activity, age, previous knowledge and media affinity.

The present users of the software INGE are employees of the urban and municipal administrations in Saxony and Thuringia. Amongst them there are as well decision-makers directly responsible on the ground for the welfare of the population and the protection of material values in the event of a disaster, as employees that have to carry out concrete safeguarding works according to instructions, and persons responsible to enter data into the software and to keep them up-to-date independently of the concrete event of a disaster.

These different fields of activities require different levels of previous knowledge – and therefore different training needs – with respect to the skilful use of the instruments of contingency planning and to the use of new media in daily business.

This heterogeneity of the target group was to be taken into account for the further concept design. Additionally it was to be considered that the training of the employees potentially concerned should be carried out during their usual working time.

## Training concept

Since the users are located in cities and municipalities throughout Saxony and Thuringia it made sense to take e-learning scenarios into consideration for the training concept. By

means of e-learning the employees can acquire the required knowledge for the use of the software INGE independent of specified times and locations. Thus a flexible training adapted to the individual needs of the participants would be possible.

E-learning “includes all forms of learning where digital media for the distribution and presentation of study material inclusive of the support of interpersonal communication in learning processes are used” (Klimsa & Issing 2011, p. 524). In this context, two variants of e-learning are possible (ibid.):

- Offline learning  
For example by the use of computer-based training scenarios (CBT) by means of a CD or a DVD.
- Online learning  
For example by the use of web-based training scenarios (WBT) realised by means of the Internet.

However, it became evident that learning exclusively by means of self-study was less successful than self-study in combination with coached phases of attendance (Ojstersek 2009).

For this reason, the concept design for the training of current and potential users of the software INGE comprises a combination of attendance learning, online learning (coached e-learning) and phases of self-study, i.e. the so-called blended learning is being applied. For the conception of blended learning courses the choice of the method appropriate for the frame conditions is of special importance.

The aspect of time, the financial resources and the readiness of the participants directly influence the choice of the method. Ablass (2006) states the following advantages for the use of blended learning scenarios for in-firm further training:

- A support by way of online media can unfold a networking effect even beyond the teaching time of the seminar
- Due to the time lag between the teaching phases there is the possibility to apply the acquired knowledge in daily business. There is no strict separation between learning and daily business.
- The participants increasingly bring their experiences into the learning phases.
- It is no longer necessary to release the employees from work at fixed times.

Blended learning scenarios exist in different blended forms with different ratios of attendance and online learning, and of self-study phases. Some prototypical blended forms are presented in the following table by Baumgartner (2011).

<b>Attendance</b>	<b>Online</b>	<b>Self-study</b>	<b>Prototypical blended form</b>
33 %	33 %	33 %	Equal distribution
20 %	40 %	40 %	High proportion of online learning, with low proportion of attendance learning
40 %	40 %	20 %	High proportion of attendance learning, with low proportion of self-study
20 %	20 %	60 %	Prototype of blended learning
20 %	60 %	20 %	High proportion of online learning
50 %	0 %	50 %	Attendance learning
60 %	20 %	20 %	Attendance learning with supporting online learning
0 %	20 %	80 %	Distance study: Distance education
0 %	0 %	100 %	Distance study: Correspondence course

In order to keep the travel expenses and times as low as possible and to support individual learning according to the respective conditions and needs, for the training concept for the software INGE the prototype of blended learning with a proportioning of the study time with each time 20 % for attendance and online learning, and 60 % for self-study has been chosen.

Predominantly, a constructivist learning approach was used as basis of the didactic conception of the blended learning training. In accordance with this approach it is assumed that knowledge has to be acquired actively and autonomously in a context of activities, and cannot be just transferred (Kopp & Mandl 2011. According to Reinmann-Rothmeier & Mandl (2001) the learning process consists of the following six characteristics:

- Learning is an active construction process. Knowledge can only be acquired by autonomous and active participation of the learner in the learning process.
- Learning is a constructive process. Knowledge can only be acquired and used when it is integrated in the already existing knowledge structures and interpreted on the basis of previous knowledge and experiences.
- Learning is an emotional process. It is of basic importance for knowledge acquisition that the learner senses positive emotions such as joy during the learning process. Fear and stress, in particular, have proven to be a hindrance for learning.
- Learning is a self-controlled process. The examination of a content causes the learner to plan, to control and to survey the own learning process.
- Learning is a social process. Knowledge acquisition takes place in the interaction with others.
- Learning is a situational process. The acquisition of knowledge is connected with a specific context or a situation because there are always contextual or situational references in any situation.

On the basis of the factors determined in the context of the analysis of the target group and the frame conditions, and on the basis of the characteristics of learning mentioned above the training concept for the potential users of the software INGE has been developed.

According to this concept the training starts with an attendance workshop, followed by a longer self-study phase during which the trainer will be available for questions. In order to

ensure the implementation of the acquired knowledge in daily business, finally a online webinar will take place.

Figure1 represents the structure of the training.

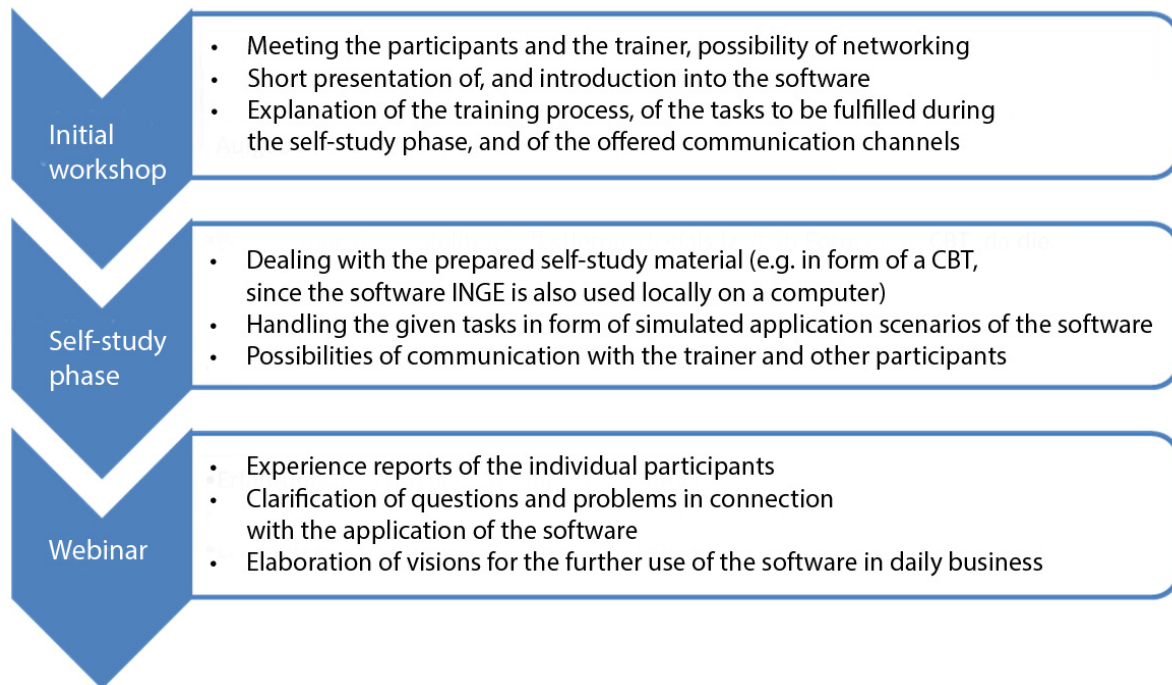


Figure 1 – Structure of the training

## Support concept

The support concept comprises recommendations for the implementation of first level support and second level support structures.

The support staff should be available by phone and also by email. A central support hotline, and also a central support email address are aimed at the synchronous communication with the users. For the purpose of managing and organising all requests a ticket system is recommended.

The first level support addresses the “normal” end user. Since the requests often are similar as to their contents, for example standard answers may be developed in form of text modules in order to reduce time and effort of the support. Key users (such as multipliers) use the software more often and for more complex application scenarios. For this reason their requests are often individual and detailed in content, thus requiring individual and detailed answers in the context of the second level support.

In addition to the possibility to obtain support by the support staff, help materials should be implemented in order to enable the users to independently find answers to questions. Examples for this are the contents of teaching developed in the context of the training, a manual with an appropriate search function, a step-by-step guide for often required more complex scenarios, a list of frequently asked questions or frequent problems, together with the respective solutions, and the provision of additional selected information.

## Media concept

A media concept comprises the totality of the media used for communication and external presentation. The purpose of the concept takes into account as well the marketing of the product with respect to potential new users as the support of the communication with existing users.

## Preconditions / analysis

The software INGE is a highly specialised and complex software solution for municipal application. The software is placed at the disposal of the target group for free.

The development of contingency planning supported by the software is a statutory duty, but the use of the software is optional.

## Goals

For reasons of the voluntariness of the use, the complexity of the software, and of the comparatively small group of potential users the focus of a media strategy is directed on the one hand toward a target-group-oriented presentation and communication of the advantages of the software, and on the other hand toward the presentation of scenarios of applications and additional benefits.

Besides this, user support and user communication play an essential role. In this context, besides the targeted support of the existing customers, a simple and targeted access for new customers is aspired.

## Use of media

In the context of the project an advertising and information flyer was developed presenting the software INGE and informing on possibilities of its application.

Furthermore, a concept for a website was developed. This website should be used as advanced communication and distribution platform.

These media will be accompanied by numerous opportunities for personal communication such as product presentations, training courses and trade fair presentations (see distribution concept).

## Media strategy

For the purpose of support by media, mainly sustainable and unidirectional offers are used. Generally, no use will be made of Web 2.0 elements such as social networks or blogs.

An essential goal is the combination of software provision and further incentives for use such as the provision of form sheets, collections of legislative texts or other compendiums on the topic. Additionally, in particular by means of print products the most important functional sequences of the software are presented as step-by-step instructions in order to help first-time users, and to provide the operating procedures required in case of an emergency.

## Information flyer

The purpose of the flyer is, on the one hand, to present the product to new customers, and on the other hand, to serve as brief instruction and memo for the operating procedures.

Generally, the flyer is handed out in the context of face-to-face communications or of product presentation events; distribution without additional information is not planned.

The front side presents the product as “eye-catcher”, and its essential incentives for the group of users. Besides such concrete application scenarios the product properties to be communicated represent “clarity”, “additional advantages” and “simple operation”.

The back side contains a brief instruction for the most important operating procedures, and additionally general information on the software such as distribution, specifications, contacts, and references to further information such as the website.

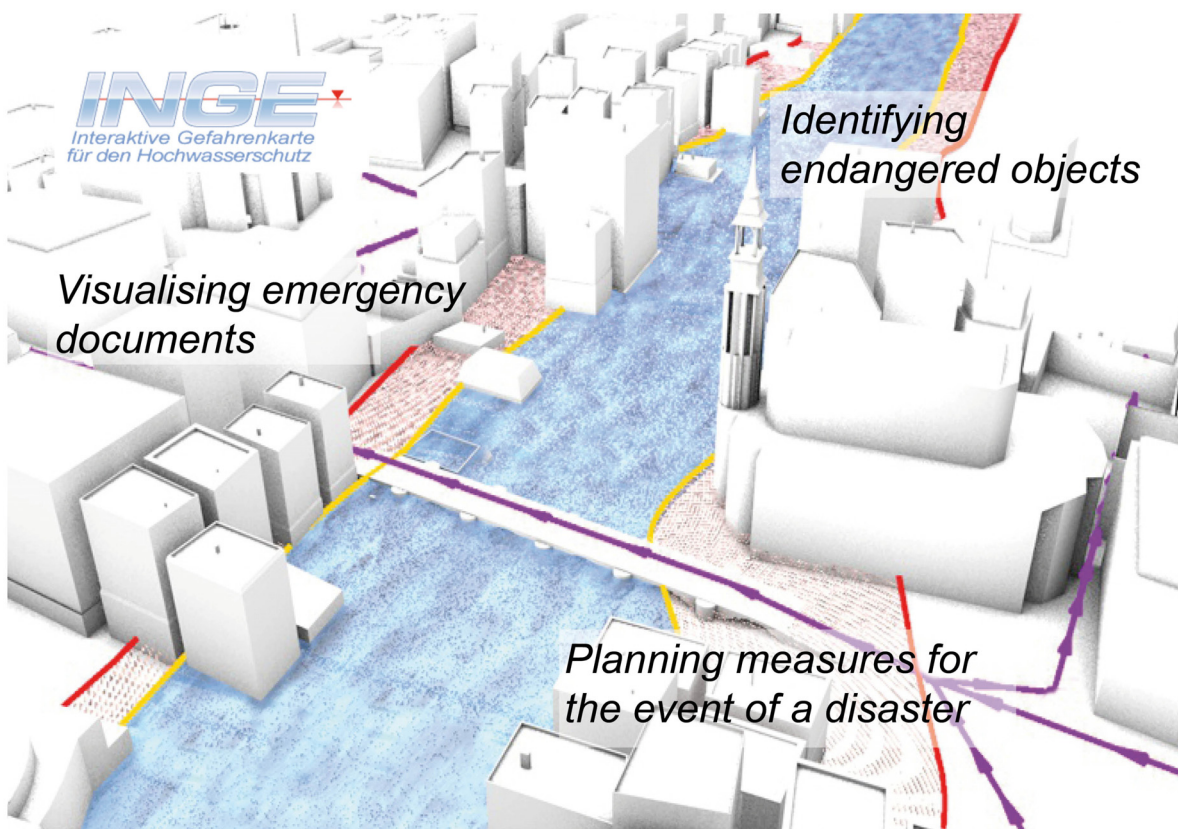


Figure 2 – Information flyer: Front side

## Website

It is recommended to create a website as essential communication medium for the INGE software. Such a website will serve as advertising and information medium, as distribution channel for the software and the training materials, and also as platform of communication with the target group.

On the basis of the requirements determined in the context of the definition of the target groups, in the course of a media concept development process a structural draft of a website has been developed.

This draft provides for a two-step drop-down main navigation, added by a constantly visible secondary navigation.



**Table 1 – Structural draft of the main navigation (\* = optional elements)**

Main navigation	Sub-navigation	Description
Flood protection	Topic “flood protection”	Presentation of / awareness raising for the topic and the tasks of / requirements on the target group
	Further information on the topic*	Additional advantages going beyond the software / enticements to visit the website, such as compendiums of rules and regulations
Software	Description	Brief presentation of the software, and of the enticements for the target group
	Applications	Presentation of concrete application scenarios, inclusive of estimation of cost reduction potentials or of the effects, respectively; user opinions etc.
	System requirements	Technical preconditions and requirements
	Costs*	If applicable, presentation of the price model
Downloads	Program	Provision of the current program version
	Documentation	Program help function
Support	FAQ	List of frequently asked questions, together with the respective answers
	Training materials	Provision of training materials for the different groups of users and different levels of knowledge

**Table 2 – Structural draft of the secondary navigation (\* = optional elements)**

Secondary navigation	Description
News*	Constantly visible list of news (program version, training dates, etc.)
Contact	Indication of different electronic and telephone contacts
Imprint	Imprint



## Marketing and distribution concept

### Marketing

For the marketing of INGE a proceeds model is proposed corresponding to the usage patterns of the users, and permitting cash flow for the purpose of constant further development of the software and for the user support. The proceeds model comprises components of the following approaches:

#### Fixed fees

A well-established proceeds model in the field of digital merchandise consists in imposing *fixed fees*. The provider defines a price that has to be paid by the user even before the provision of the service, independent of the actual level of usage. Usage-independent, fixed fees have the advantage of easy calculability and balancing. For this reason this model is recommended for all users with stable usage patterns. The amount of the fees is determined according to costs and competition. With respect to competition-oriented pricing the provider takes the prices of the other market participants into account.

Whether the (base) price for INGE will correspond to the average market price, or will deliberately be different of it depends on the strategic goals of the provider: A provider might deliberately undercut the market price in order to get the cost leadership, or he might surpass the market price in order to distinguish himself as premium provider.

The antipole of the competition-oriented pricing is the cost-oriented pricing. Here, all resources consumed (costs) are taken into account for the purpose of pricing.

For the marketing of the software INGE a cost-oriented pricing is proposed. In particular, the continuous expenditure for the provision and the further development of the software, and for the user support will flow into the base price.

Since the provision of the software INGE for the municipalities generally is to be free of charges because it is serving the public good, the funding of these costs should be ensured by financial support by the respective federal state or by associations of municipalities. In order to fund more expensive development phases including for example new functionalities or media for the software, in addition, appropriate EU projects should be involved, as it has already been the case in the past.

#### Fees depending on usage

In addition to the above-mentioned proceeds model return flows can be generated from *fees depending on the usage*.

Here, the intensity of usage and the usage patterns of individual users are analysed in order to derive a price reflecting the continuous expenditure for the provision and the further development of the software, and for the user support in dependence of the actual usage of services. Fees depending on usage are difficult to calculate since the intensity of the usage of the software varies strongly with the time. However, the customer will have the subjectively perceived advantage to pay only for services actually performed.

Since the provision of the software INGE for the municipalities generally is to be free of charges, the return flows should be generated preferably through the domains of user support, data administration and training.

In the domains of user support and data administration the actually consumed hours of support or services, respectively, will be accounted.

In the domain of training fixed fees per person and training can be agreed that at least refund a part of the training expenditure. However, the training should be financially supported by the federal state or by special purpose associations so that the participation in the training will remain affordable for the users from the municipalities.

## Distribution

The distribution of the software INGE is the result of a differentiated plan of measures.

The provision of the product information by means of an own website and in printed form by means of a product flyer (see media plan) is of basic importance. Both communication channels comprise basic information on the functionalities and fields of application of the product, on the product providers and the reference customers of INGE. This information should be edited specifically for the different target groups. In order to approach potential users (municipalities, associations) formats of classic advertising, of face-to-face communication and of online marketing will be used.

*Classic advertising* comprises all non-personal presentations and the support of sales, for example by means of newspaper advertisements, TV or radio spots, posters, etc. The publication of professionally edited information on the software INGE in official media for the public authorities would be particularly promising.

*Face-to-face communication* is characterised by direct contact between interested persons and providers. This can be realised in particular by means of trade fair participations, telephone campaigns, information evenings, or the presentation of INGE in individual municipalities selected beforehand, with anticipated needs, i.e. increased flood risk.

*Online marketing* comprises all Internet-based communication measures. Since at present the Internet is the most important information medium for the choice of products that need explanation, providers are obliged to pay special attention to the field of online marketing. By means of email campaigns municipalities with high anticipated needs, i.e. increased flood risk, will be specifically approached.

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