

Building and managing next generation geo apps

Ralf Hackmann, con terra

Geospatial World Forum, Lisbon

Our (digital) world has changed....

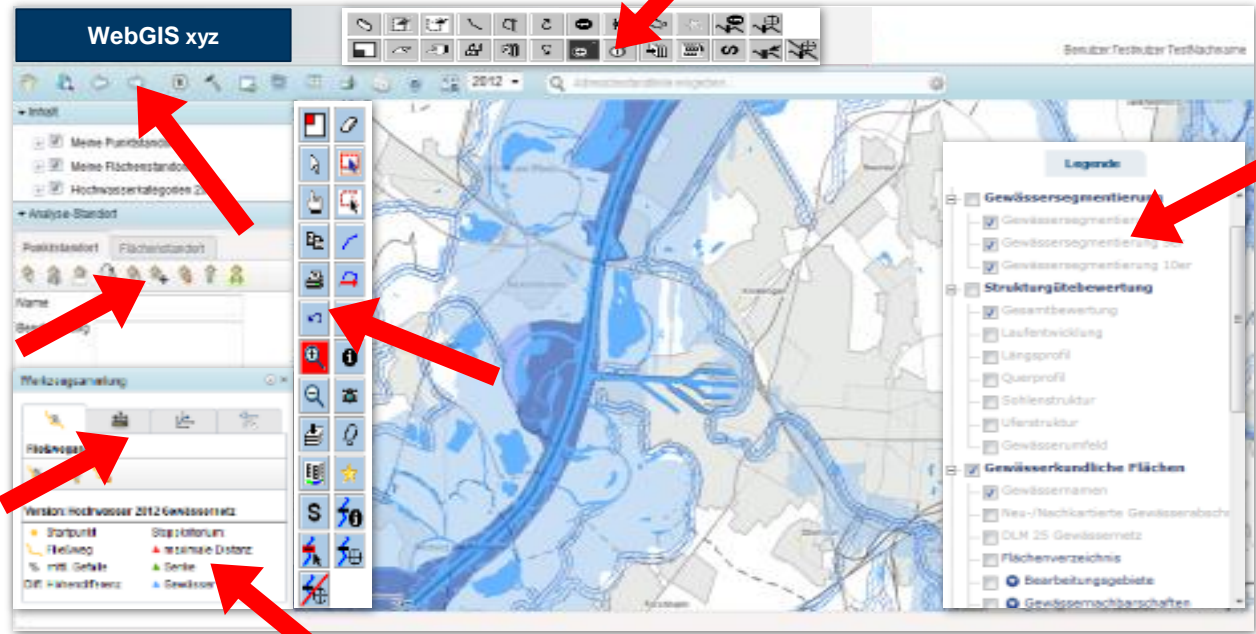
...and so the (digital) geo-spatial world!



In the past: Few large systems organize the information infrastructures in Public and Enterprise Organizations

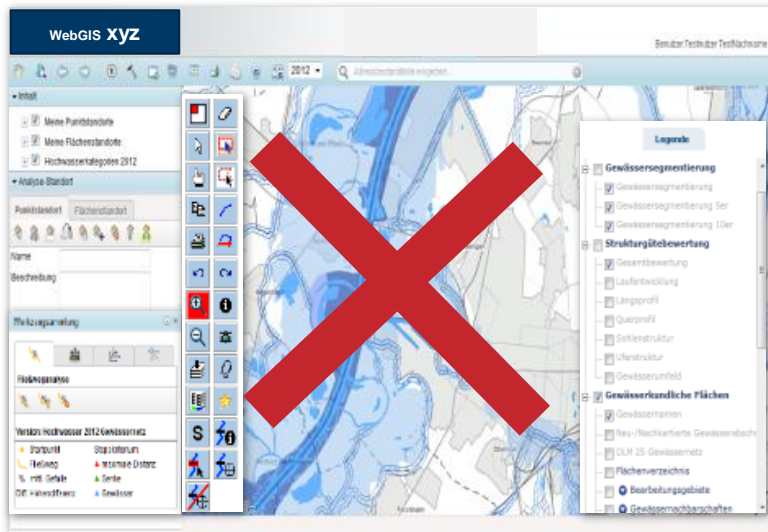


classic „Geo Portals“



The Goal: Create focussed apps

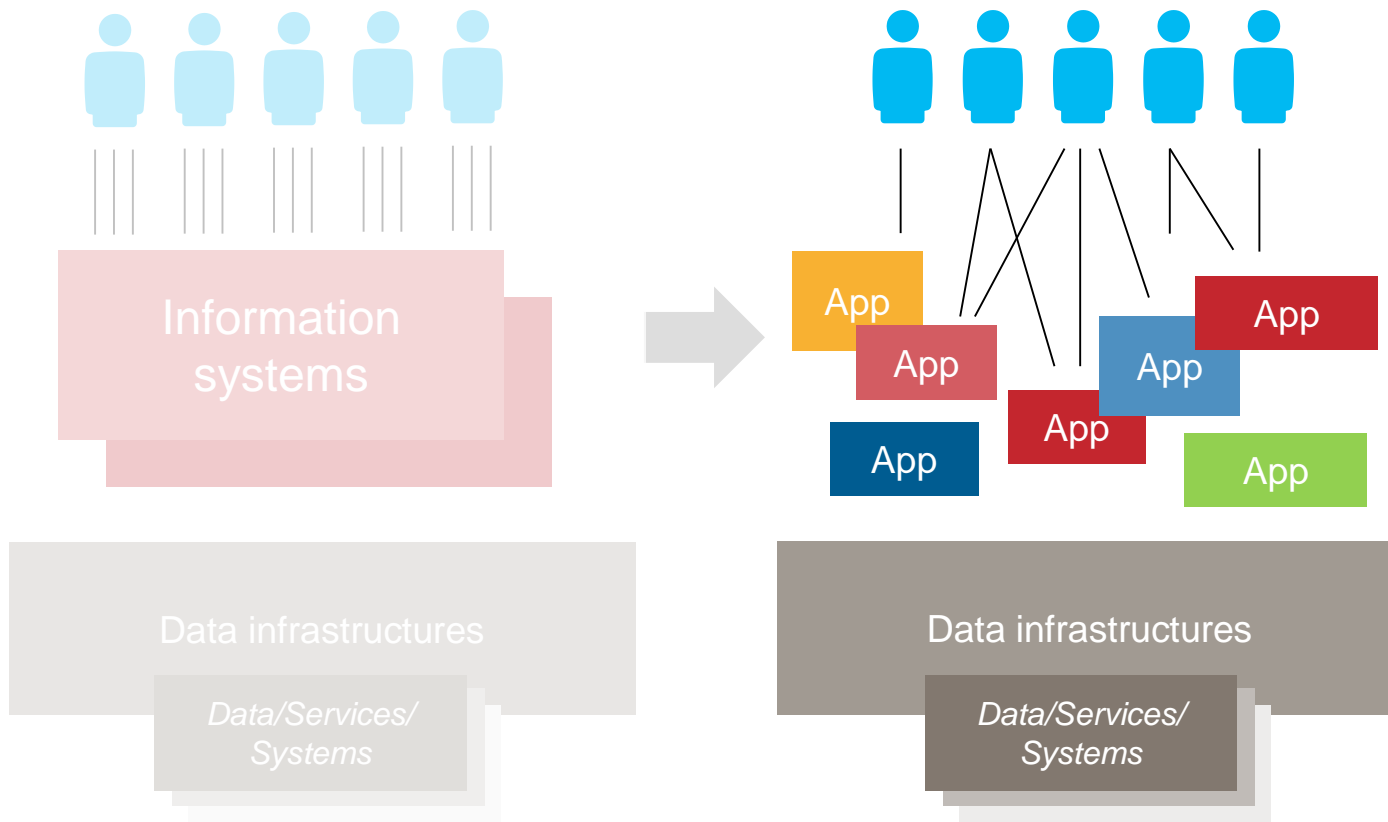
- ...instead of one fat client



Central Operational Environment



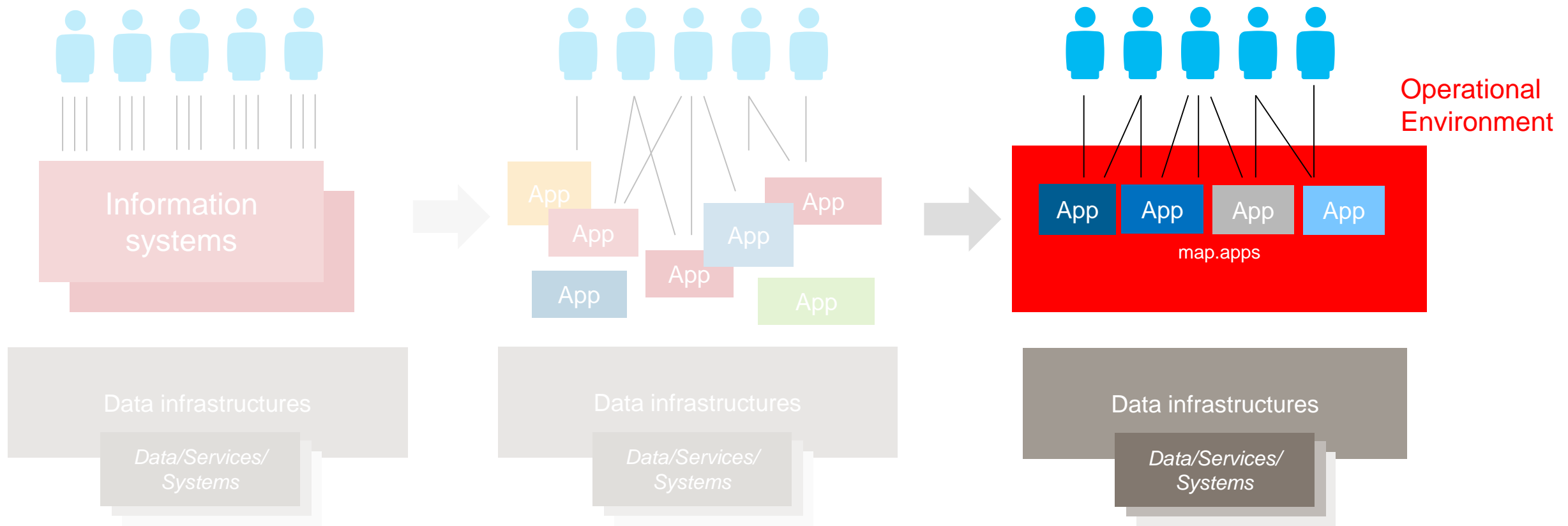
Today... Purpose-Driven, Simple, Easy-To-Use Apps



- **Challenge:**

In enterprises, many purposes may lead to potentially many apps!

Implementation of Enterprise Systems as multiple, managed and interconnected Apps in a Single Operational Environment

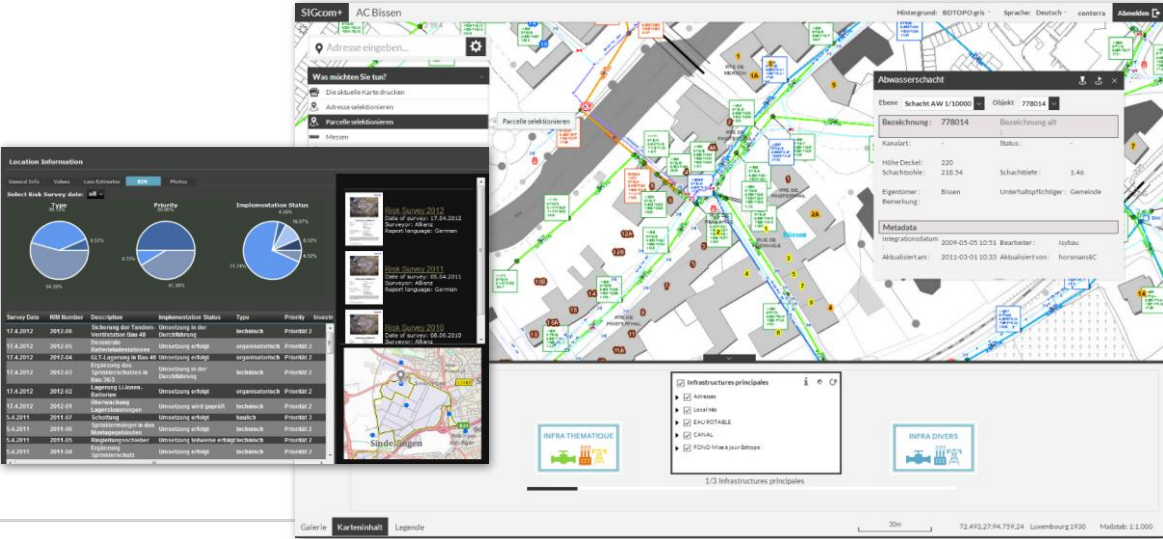


Geo-apps can be...

simple map-based apps



Comprehensive „WebGIS“ or specialised Solution



An aerial photograph of a large circular field with concentric furrows, likely a precision agriculture demonstration. A tractor is visible at the bottom right of the field. The text is overlaid in the center of the image.

**...some central aspects of
geo-apps
(Dos' & Donts')**

Aspects of geo-apps

- Focused
- Clear & Concrete
- Simple & smart
- Flexible & intelligent
- Fast

- > Running as a Web App in the browser!
- > JavaScript
- > HTML 5

Web-App
App
Mobile-App
Cloud-App
Native-App
Hybrid-App
Geo-App



Example: Simple & smart: „How to provide map content?“

This way?

- Massenbewegungen
 - Geotek-Objekte
 - Anbruchbereiche
 - Ablagerungsbereiche
 - Karte der Aktivitätsbereiche
 - Bewegungstyp
 - Aktivitätsbereiche
 - Gefahrenhinweiskarten
 - Sturzprozess (mit Wald)
 - Tiefreichende Rutschung
 - Schadenslinien
- Wildbechereignisse
 - Wildbechereignisse
 - Hochwasserereignisse
- Geologie, Morphologie
 - Geol Karte 1 500 000
 - Haupteinheiten
 - Linien
 - Strukturlinien
 - Hydrographisch-Morphologische Karte
 - Schwemmkegel
- Forst
 - Schutzwald
- Wasserwirtschaft
 - Gefährdete Objekte, Erosionsformen - Programm 2000
 - Gefährdete Objekte
 - Vertiefungen
 - Erosionsformen - linienhaft
 - Erosionsformen - flächenhaft
 - Integriertes Wildbechenschutzkonzept
 - Wildbeche und Wildbechgebiete
 - Wildbechstrecken
 - Wildbech-Ausbaustrecken
 - Wildbech-Einzugsgebiete
 - Prozesshinweiskarten
 - Abtragebereitschaft
 - Abflussbewert
- Grundlagen
 - Erholungslandschaft Alpen
 - Verwaltungsgrenzen
- Externe Themen
 - Umweltverwaltung Bayern: Schutzgebiete
 - Naturschutzgebiet
 - FFH-Gebiet
 - Vogelschutzgebiet

...or this way?



→ [Link](#)

Regionalverband FrankfurtRheinMain RegioMap

Adresse, Ort oder PLZ...

Login ?

Was möchten Sie tun?

Regionalverband FrankfurtRheinMain

Hintergrund Map Content Table of contents Legend

30km 491,572 : 5,555,448 ETRS89 / UTM zone 32N Scale: 1:1,000,000

The image shows a web-based map interface for the Frankfurt RheinMain region. At the top, there is a header with the organization's name and a search bar. A green button asks 'Was möchten Sie tun?'. The map itself features a blue outline of the region and a dense network of red lines. A large play button is overlaid on the map. The bottom of the interface includes a navigation menu, a scale bar, and technical map data.

For public apps: „Single Topic Maps“!

- „Single Topic Maps“:
 - > focused apps, which show one (or just a few) topics
- Embed them into websites
 - > Example: „city parking“ map, embedded as a small widget in a city's website
- Easier to find in search engines
 - > ...in comparison to just one of many data layers in a big Portal



Rathaus und Bürgerservice online | **Tourismus und Veranstaltungen** | **Kultur und Bildung** | **Wirtschaft und Standortmarketing** | **Wissenschaft und Technologie**

STADT BOCHUM

Rathaus und Bürgerservice online > Ämter und Institute > ... von A bis Z > Geoportal

Geoportal

Im Geoportal der Stadt Bochum werden raumbezogene Daten zur Ansicht präsentiert. Es handelt sich um Stadtpläne, Luftbilder, Bebauungsplanabgrenzungen und weitere Geoinformationen aus dem Stadtgebiet Bochum.
Bei weiteren Fragen wenden sie sich an geodatenmanagement@bochum.de.

- Stolpersteine**
Die "Stolpersteine" finden sich überall im Stadtgebiet ...
mehr Informationen
- Stadtplan**
mit Punkten von Interesse (Bildung, Gesundheit, Soziales, Sport, ...)
mehr Informationen
- Infrastruktur, Bauen und Wohnen**
Bebauungsplanübersicht, Umweltzone...
mehr Informationen
- Baustellen**
Hier finden sie Baustellen in einer Übersichtskarte.
mehr Informationen
- Umwelt und Klima**
Aktuelle Informationen über die anstehenden Baumfällungen
mehr Informationen
- Umweltzone Bochum**
In der Umweltzone dürfen nur Fahrzeuge mit grüner Plakette ...
mehr Informationen
- Lärmkarten**
zeigen anhand von farblichen Flächen die Höhe der Lärmbelastung
mehr Informationen
- Klimaanpassung**
Die Stadt Bochum hat ein Konzept zur Anpassung an den Klimawandel ...
mehr Informationen
- Liegenschaftskarte / Flurkarte**
als nicht amtlicher Nachweis
mehr Informationen
- Autorisierter Zugang**
Benutzername und Passwort erforderlich
mehr Informationen

Seite drucken | Seite weiterempfehlen | zurück

Suche Straße / Hausnummer

Was möchten Sie tun?



Example: Concrete & preconfigured

- Provide only the necessary and usefull information

concrete

Generic = not concrete

NSG Mühlenberger Loch/Neßsand

NSG Mühlenberger Loch/Neßsand

Nummer: HH-201
Rechtsgrundlage: HmbGVBl. 2005, S. 431
Schutzzone: 0
Verordnung: 18.10.2005

Foto-Link:
http://geoportal-hamburg.de/schutzgebiete/Bilder/NSG_MuehlenbergerLoch.JPG

con terra

Show details

Property	Value
OBJECTID_1	6
gml_parent	
gml_id	SG_NATURSCHUTZGEBIET_1_1
Gebietsnam	NSG Mühlenberger Loch/Neßsand
Gebietsnum	HH-201
Rechtsgrun	HmbGVBl. 2005, S. 431
Schutzzone	0
Erfassungs	DGK5/DSGK mind. 1:5000
Info_Konta	http://www.portalu.de/ingrid-portal/portal/search-detail.psmf?docuuid=0F0CBE61-F983-4321-A510-5BBDD3B512D3&plugid=/kug-group:kug-iplug-udk-db_hh
Link_Info	http://www.hamburg.de/muehlenloch-nesssand/
Link_Foto	http://geoportal-hamburg.de/schutzgebiete/Bilde

map.apps Lissabon_Infowidget_demo

Style: everlasting Basemap: Luftbild Language: en (en) Live Configuration

Address or place... Was möchten Sie tun?

Earthstar Geographics, CNES/Airbus DS

Map Content Legend

2km 009°46'50"E:53°24'28"N long/lat:WGS84 Scale: 1:86,295

POWERED BY esri

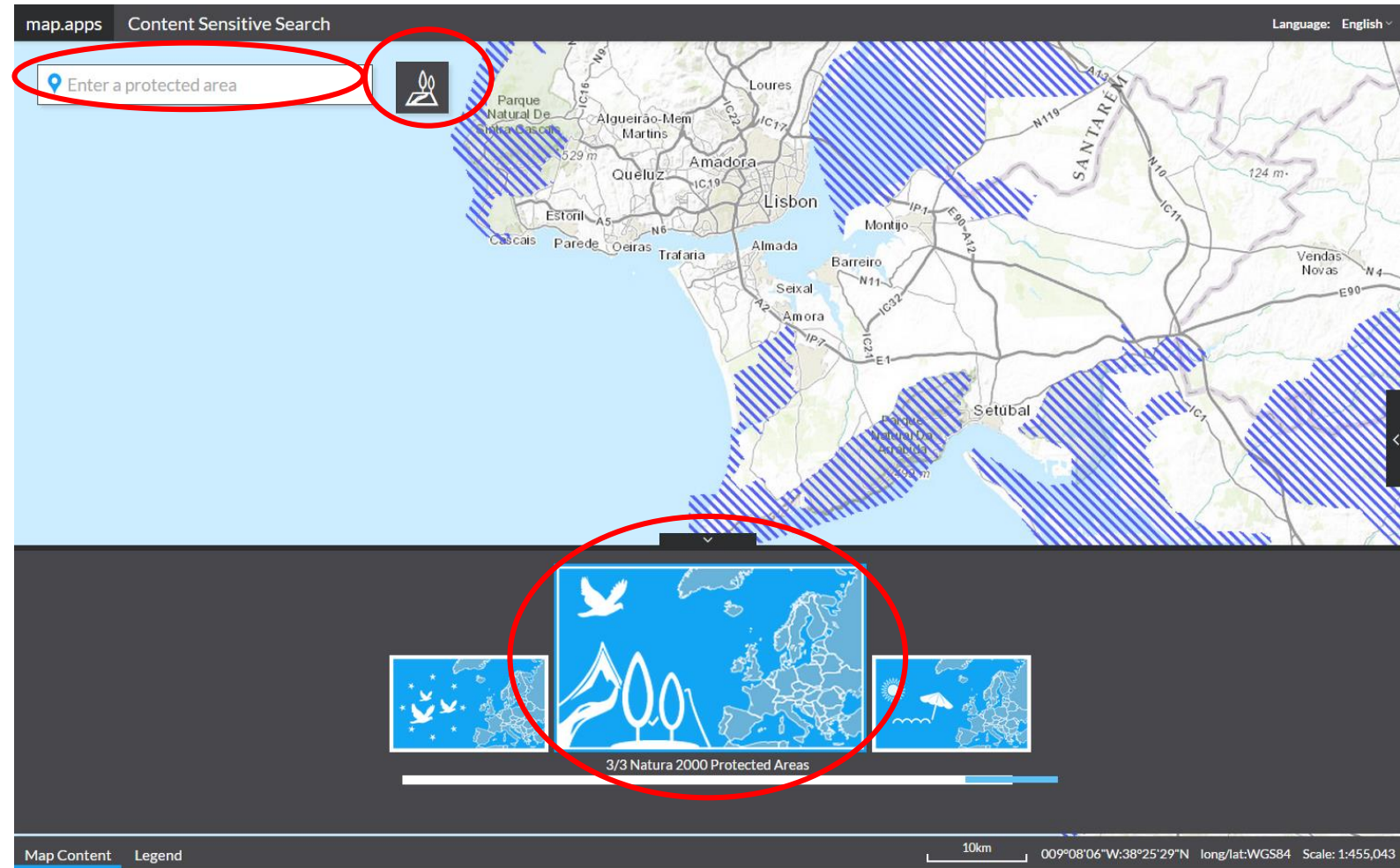
The image shows a web-based map application interface. At the top, there is a header with the text 'map.apps Lissabon_Infowidget_demo' on the left and 'Style: everlasting Basemap: Luftbild Language: en (en) Live Configuration' on the right. Below the header is a search bar with the placeholder text 'Address or place...' and a settings gear icon. A blue button with the text 'Was möchten Sie tun?' is positioned below the search bar. The main area of the interface is an aerial photograph of Lisbon, Portugal, with several irregular green-shaded regions overlaid on the map. A large white play button icon is centered over the map. In the bottom right corner of the map area, there is a 'POWERED BY esri' logo and a small information icon. At the bottom of the interface, there is a footer with 'Map Content Legend' on the left, a scale bar showing '2km', and coordinates '009°46'50"E:53°24'28"N long/lat:WGS84 Scale: 1:86,295' on the right.

Example: Intelligent Behavior

- **dynamic tools (Tool Rules)**

- > Display of tools depends on the selected map theme
- > Intuitive use
- > Highly configurable

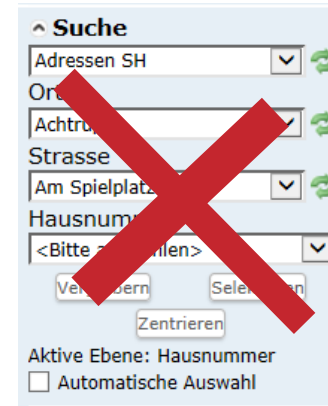
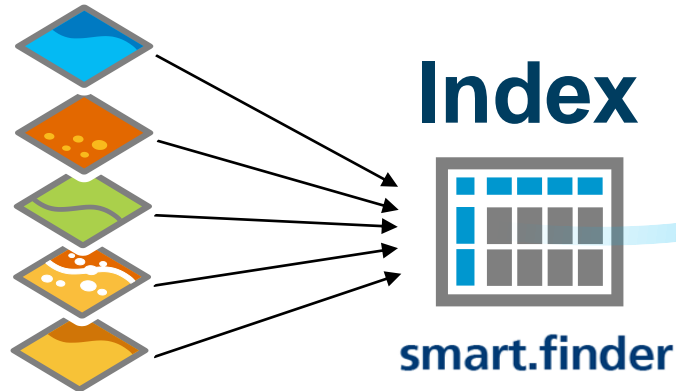
> demo



Example: search

- Provide easy and „state of the art“ search options
- Fast, Auto complete, „google-like“
- Use indexing instead of server requests!

Adresses
POIs
Thematic
data
Facilities
Assets
...



Example: search and select: non generic but concrete

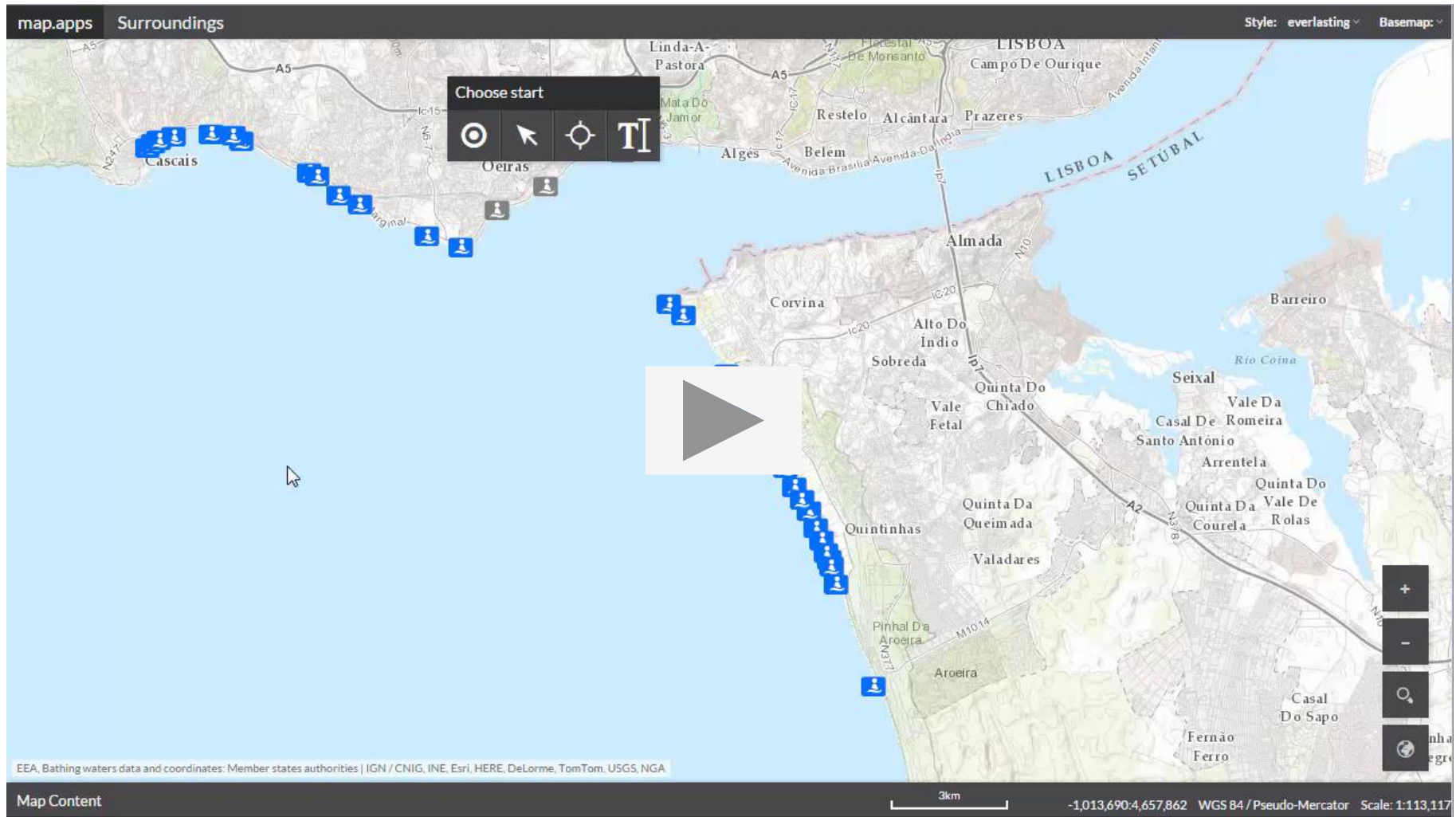
- Focussed apps reduce clicks!
- „3 clicks to success“!



The screenshot shows a web application interface for searching and selecting locations. The interface is divided into three main sections:

- Surroundings Panel (Left):** This panel contains a search form with the following elements:
 - A dropdown menu set to "Bathingwater".
 - Radio buttons for "Distance in kilometers" and "Distance in travel-time (ArcGIS-Online Account is required)".
 - Sliders for configuring the extent of travel: "Between 10 m and 5000 m" for distance, and "10min" to "20min" for travel time.
 - Buttons for "Search" and "Reset".
- Map (Center):** The map displays a coastal area with a dashed circle indicating the search radius. A red circle on the map is labeled "10m - 5000m". Several blue location markers are visible along the coast.
- Result Center Panel (Right):** This panel lists search results with checkboxes for selection. The results include:
 - CABANA DO PESCADOR
 - SAÚDE
 - RIVIERA
 - REI
 - S. JOAO DA CAPARICA
 - TARQUÍNIO PARAÍSO
 - PRAIA DO CDS
 - MATA
 - SEREIA
 - MORENA
 - CASTELO
 - RAINHA (ALMADA)
 - PRAIA NOVA

At the bottom of the interface, there is a footer with map content information: "Map Content: Result Center", a scale bar for 2km, and coordinates: "-1,021,495;4,664,065 WGS 84 / Pseudo-Mercator Scale: 1:56,52".



An aerial photograph of a large, circular field. The field is divided into numerous concentric rings of mowed grass, creating a spiral pattern that leads towards the center. The grass in the rings is a mix of green and brown, suggesting it has been cut. At the bottom edge of the circular field, a red tractor is visible, pulling a piece of agricultural machinery. The surrounding area is a flat, green field.

What does this mean for administrators?

Smart & focused does not mean: „less functionality!“

- Create easy to use apps!
- ...even if the tasks are complex!
 - > Deeply think about the problems, your users have to solve!
 - > What do your users really need? And what don't?
 - > Don't leave them alone with the solution workflow!

...that can be hard work!

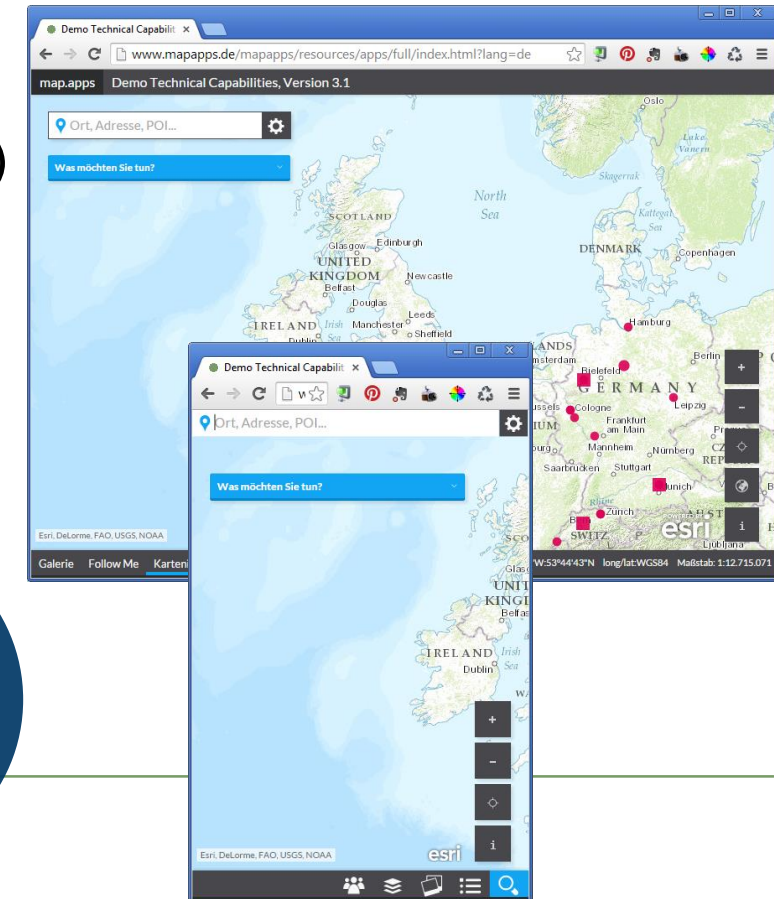
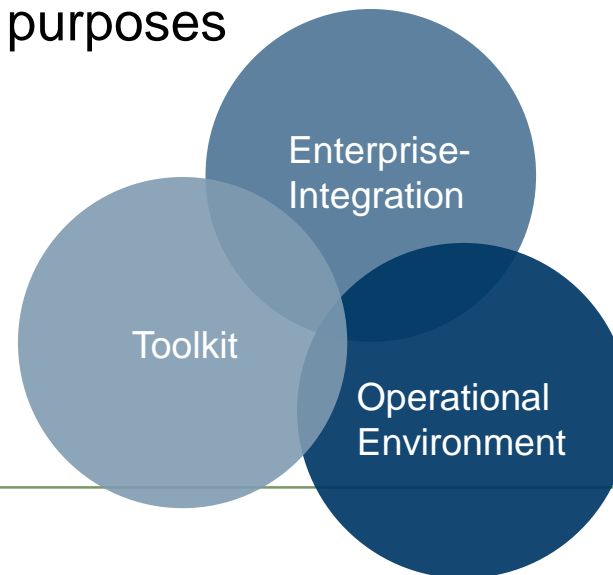
An aerial photograph of a large circular field with concentric furrows, likely a precision agriculture demonstration. A red tractor is visible at the bottom right, and a small drone is flying above it. The text "What is needed?" is overlaid in the center.

What is needed?

map.apps - core Characteristics of a modern „app platform“

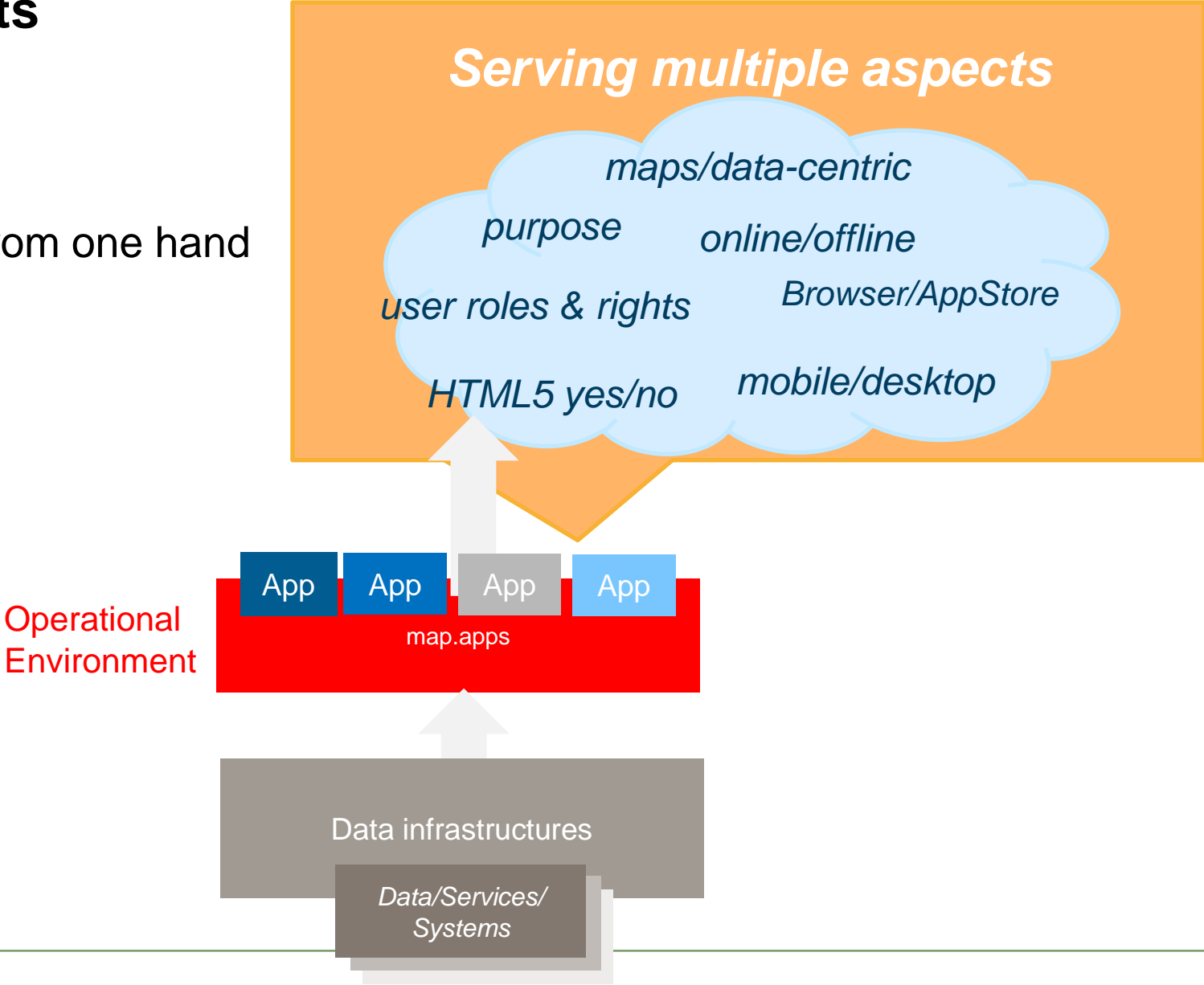
map.apps is a development toolkit and operational environment for geospatial apps and enterprise-level solutions

- Toolkit for easy creation of Solutions and Geo-Apps (web / mobile)
- Centralised Operational Environment for efficient IT operation of multiple Apps for various purposes
- Enterprise-ready and easily integrated



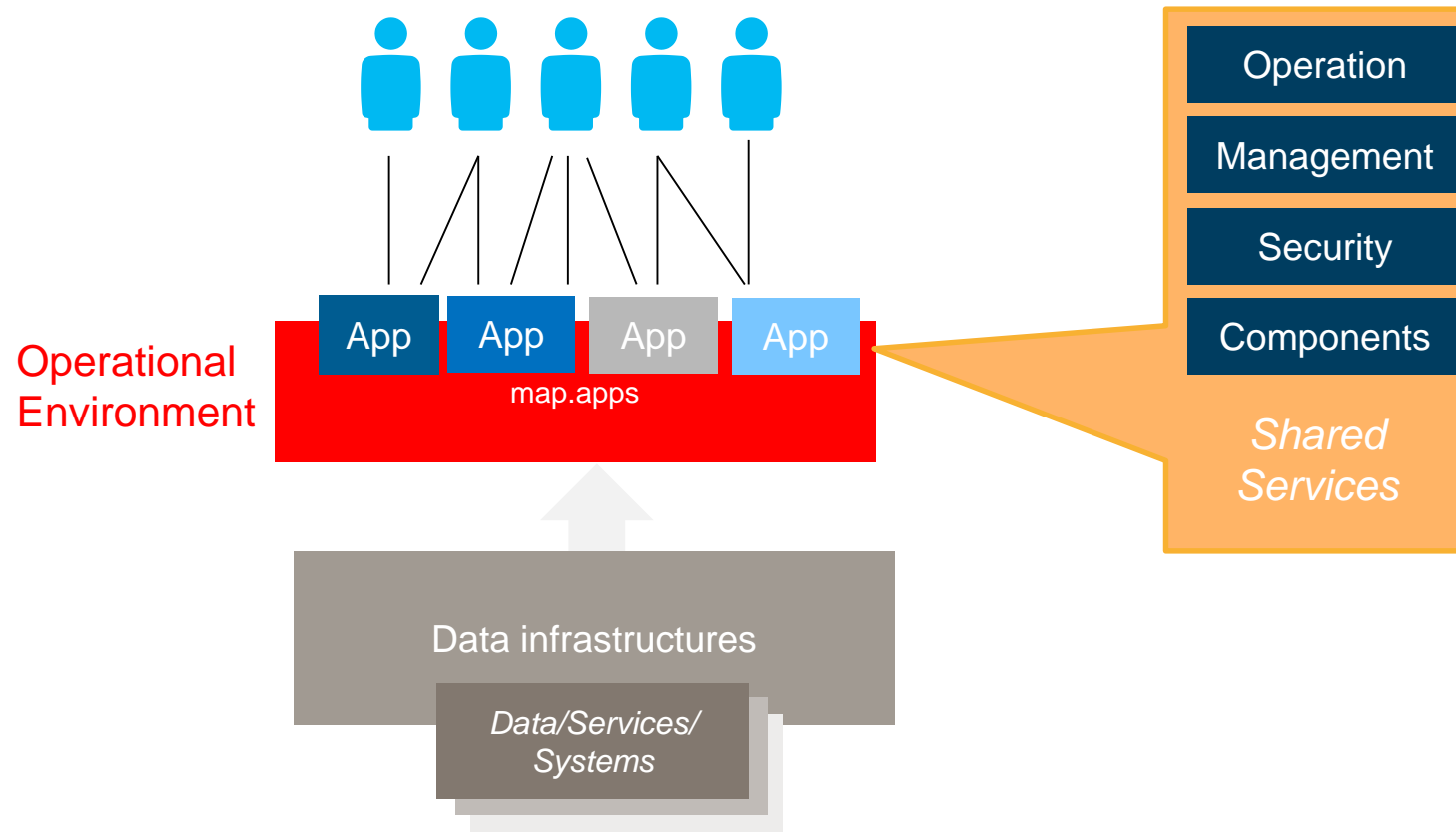
Serve multiple aspects from a single system

- Supports many possible different facets of apps from one hand



Shared services and components across all apps

- configuration, management, security, versioning, integration and interaction with business systems





500px DataStore



App mit Werbeba...



Edit App Standard



Edit App mit Attac...



Eye-On-Earth We...



FME Ext: Feuerwe...



FME Ext: Parkplat...



Favorite Places in...



Favorite Places in...



Fix-My-City - Mob...



Fix-My-City App -...



Fix-My-City Desk...



GEONIS Ext: Feed...



GEONIS Ext: Pipe...



GEONIS Ext: Wat...



Geoprocessing via...



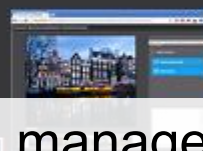
Kontext Sensitive ...



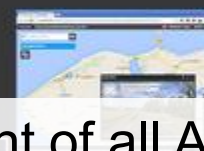
MapMovie Kreis S...



Night App



Panoramio Wikipe...



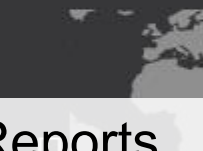
Panoramio Wikipe...



SDI Ext: Demo App



Smartsearch Ext: ...



Standorte Esri Deutschland...



Surroundings Cam...



Talking App

- Centralized management of all Apps, Templates, Functions, Reports...

- > Creating and Deleting
- > Upload, Register, Export
- > Define app-status
- > Sorting and filter functions
- > Direct execution of Apps

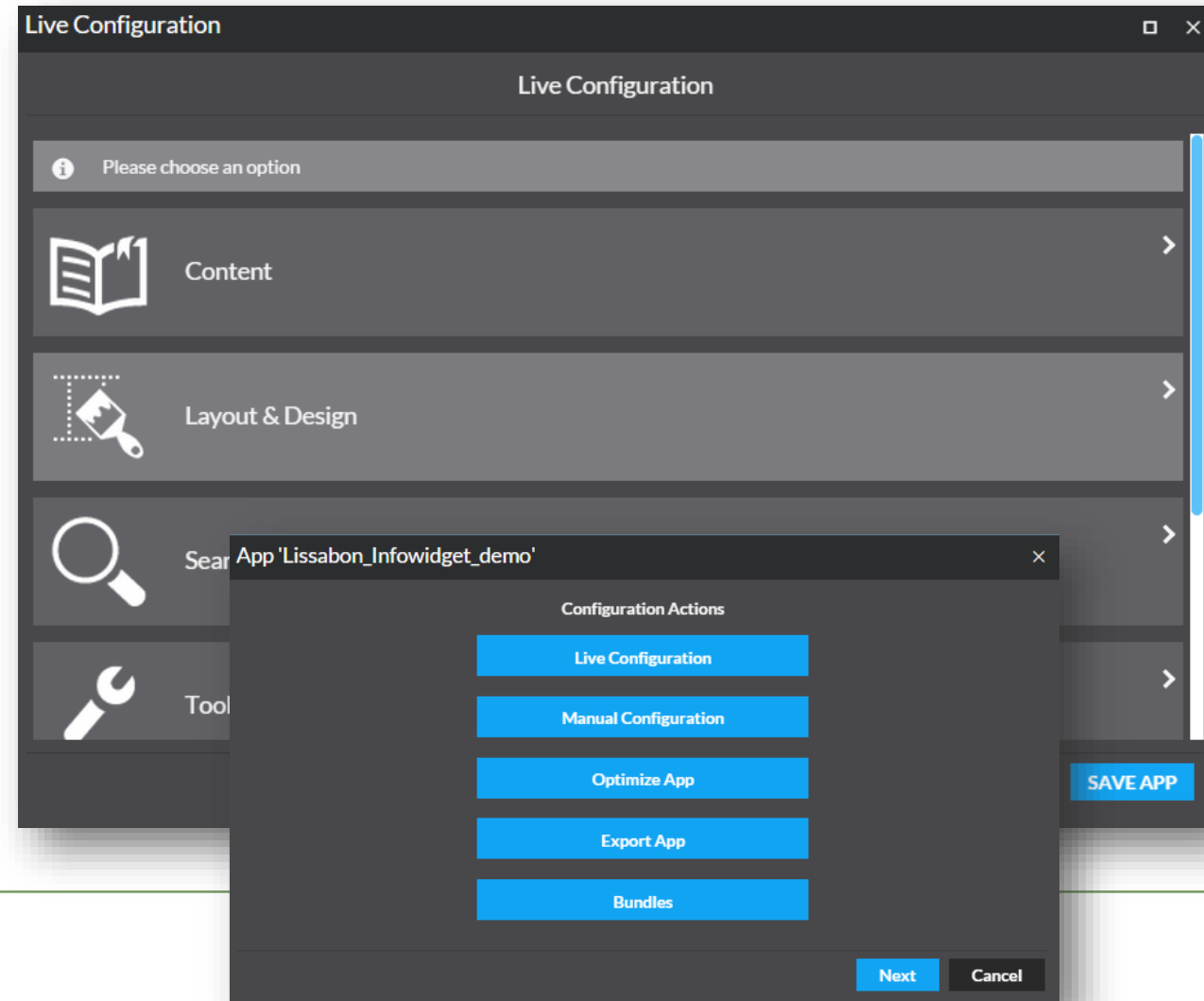
+ - Filter by app template

Items 1-27 of 27 10 | 25 | 50 | 100 << < 1 > >> All

App ID	Title	State	Description	Modified By	Modified At	
500px	500px DataStore	Published	App integriert Daten von 500px über einen eigenen DataStore	admin	3/25/15, 2:26 PM	Launch
advertisement_manual	App mit Werbebanner	Published	App mit Werbebanner, dass per Update des "advertisement" Bundles aktualisiert wird	admin	3/25/15, 2:27 PM	Launch
edit_standard	Edit App Standard	Published	App zeigt Standardmöglichkeiten des Editierens	admin	3/25/15, 2:29 PM	Launch
edit_attachmentview	Edit App mit Attachmentview	Published	Erweiterte Editing Funktion, Objekte haben einen Attachmentview mit Preview	admin	3/25/15, 2:29 PM	Launch
eye-on-earth	Eye-On-Earth Webmap Browser	Published	App mit einer Vielzahl von Webmaps, die durchgeblättert werden können	admin	3/25/15, 2:30 PM	Launch
fme_firestations	FME Ext: Feuerwehren Fahrzeit	Published	App lädt POIs hoch und führt mittels ArcGIS Online Fahrzeitberechnungen durch	admin	3/25/15, 2:35 PM	Launch
fme_carpark	FME Ext: Parkplatzsituation in Münster	Published	App lädt eine HTML Seite mit Parkplatzdaten transformiert diese in JSON und lädt sie nach map.apps	admin	3/25/15, 2:34 PM	Launch
favorites-san_diego	Favorite Places in San Diego	Published	Endkunden App zur Erfassung von interessanten POIs; optimiert für Mobile	admin	3/25/15, 2:32 PM	Launch
favorites-san_diego-admin	Favorite Places in San Diego - Admin	Published	Admin App zur Verwaltung von gemeldeten POIs. Nur für Administratoren zugänglich	admin	3/25/15, 2:31 PM	Launch
fixmycity-mobile	Fix-My-City - Mobile App	Published	Endkunden App zur Meldung von Problemen; optimiert für Mobile	admin	3/25/15, 2:33 PM	Launch
fixmycity-admin	Fix-My-City App - Admin	Published	Admin App zur Verwaltung von gemeldeten Problemen. Nur für Administratoren zugänglich	admin	3/25/15, 2:32 PM	Launch
fixmycity-user	Fix-My-City Desktop App	Published	Endkunden App zur Meldung von Problemen; optimiert für Desktop	admin	3/25/15, 2:33 PM	Launch
geonis_feedermap_lachen	GEONIS Ext: Feedermap Lachen	Published	GEONIS Beispiel App; BITTE NICHT EDITIEREN/SPEICHERN!	admin	3/25/15, 2:36 PM	Launch
geonis_pipe_damage_reporter	GEONIS Ext: Pipe Damage Reporter	Published	GEONIS Beispiel App; BITTE NICHT EDITIEREN/SPEICHERN!	admin	3/25/15, 2:36 PM	Launch
geonis_water_lachen	GEONIS Ext: Water Lachen	Published	GEONIS Beispiel App; BITTE NICHT EDITIEREN/SPEICHERN!	admin	3/25/15, 2:36 PM	Launch
wab	Geoprocessing via WAB	Published	App nutzt ein Geoprocessing Widget des Web AppBuilder. Vorkonfiguriert auf Drivetime-ProcessingService (AGOL)	admin	3/25/15, 2:52 PM	Launch
context_sensitive_queries	Kontext Sensitive App	Published	Suche und Selektion sind kontextsensitiv, die jeweiligen Datenquellen wechseln mit der Karte	admin	3/25/15, 2:28 PM	Launch
movie_steinfurt	MapMovie Kreis Steinfurt	Published	App animiert verschiedene Basiskarten zu einem Film	admin	3/25/15, 2:37 PM	Launch
night	Night App	Published	App mit alternativem Layout (Theme und Template)	admin	3/25/15, 2:37 PM	Launch
panoramio_wikipedia_plain	Panoramio Wikipedia Basic	Published	Lädt Panoramio und Wikipedia, Streetview	admin	3/26/15, 8:52 AM	Launch

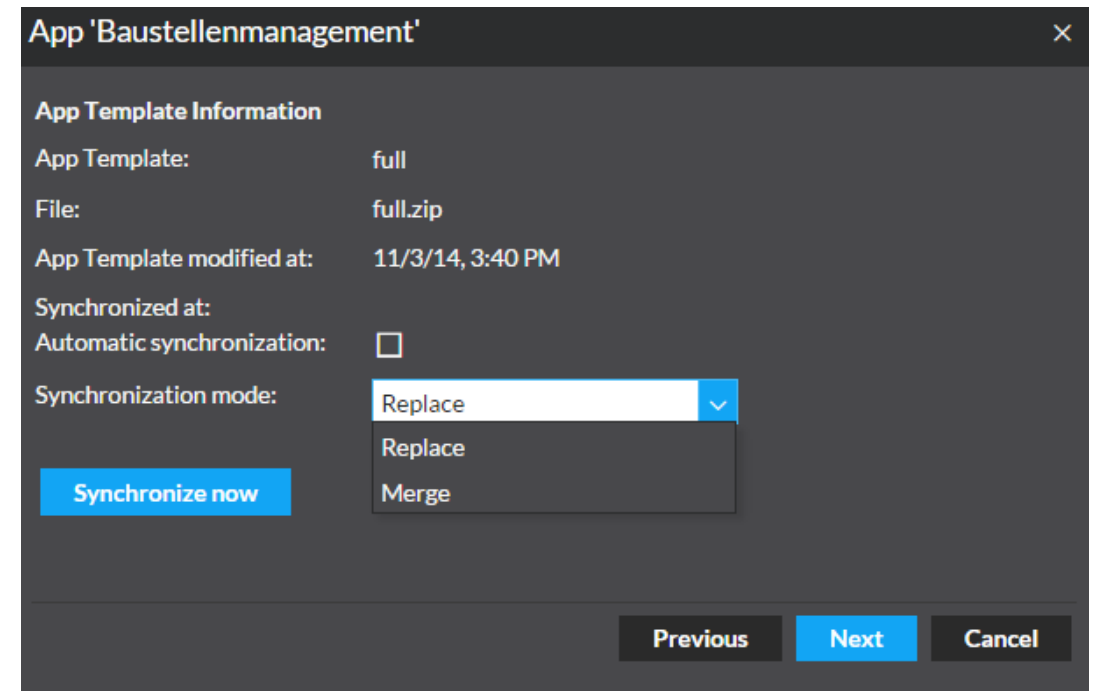
Easy configuration of apps

- Easy WYSYWG tools
- Using pre-built App Templates
- Easy entry points for advanced script configuration
- **→ fast creation process for apps**



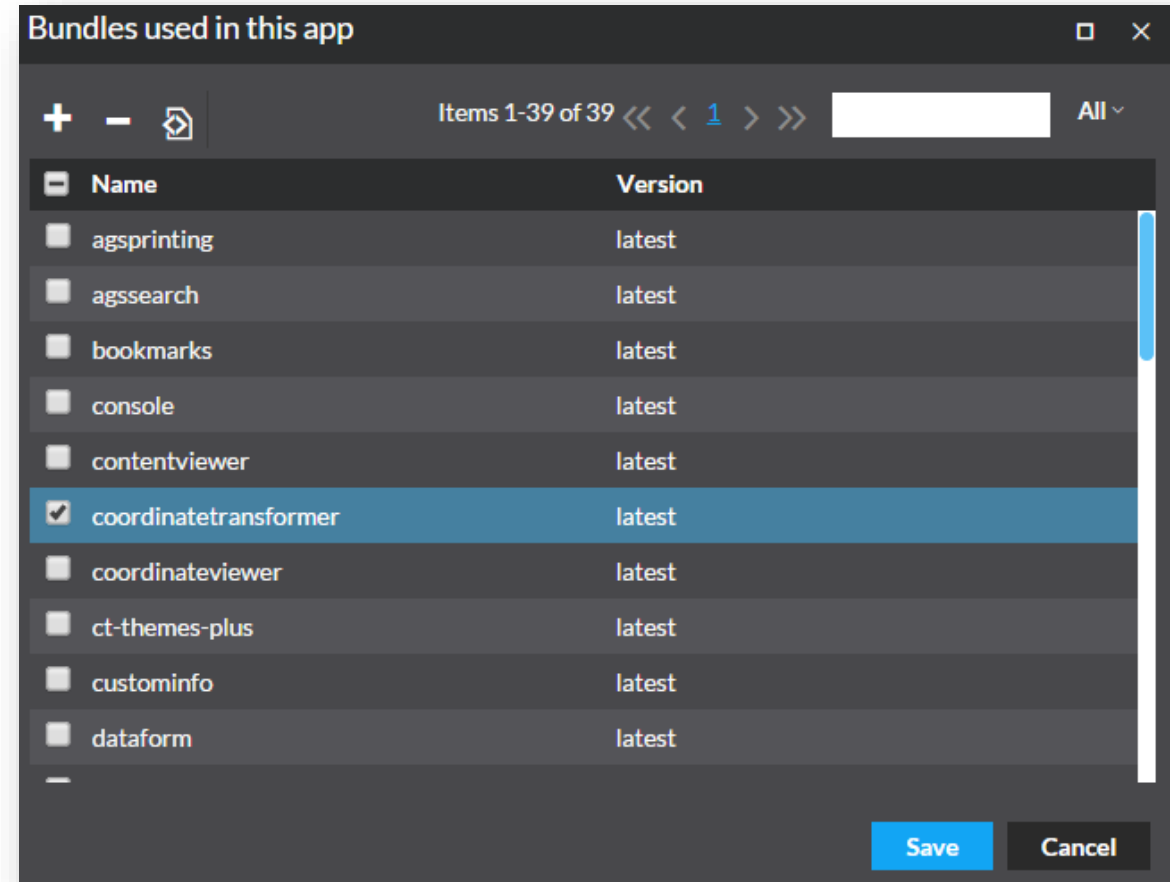
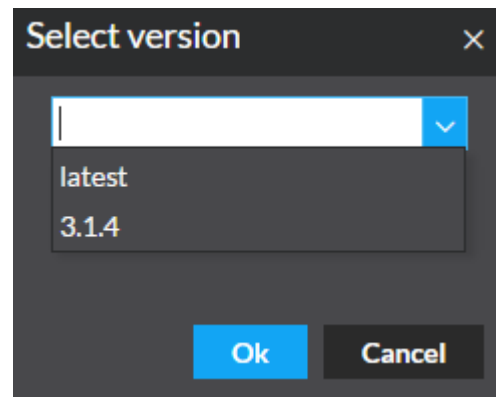
Easy updating of apps

- Automatic update
- Synchronisation / live-link between templates and apps
- Individual configurations can be
 - > replaced
 - > Merged
- **→ efficient maintenance of apps!**



Easy migration of apps and base software

- Versioned functionality (components)
- You decide, which version of an function the app uses!
- → **easy and smooth migration process for apps and customized functionality**



An aerial photograph of a large, circular field. The field is divided into numerous concentric, slightly irregular tracks, suggesting a mowing or harvesting pattern. The tracks are a mix of green and brownish-yellow, indicating different stages of vegetation or soil. In the bottom right corner of the circular field, a red tractor is visible, equipped with a mowing implement. The surrounding area outside the circular field is a uniform green field.

Take away

Take away

- Create focused apps instead of fat clients
- Use modern approaches for user interaction
 - > Content
 - > Info & reporting
 - > Search
 - > ...
- Multiple single purpose apps need a management platform
- Keep an eye on aspects like
 - > Security
 - > Modularity
 - > Easy maintenance & Migration
 - > →sustainability of your apps!



...create apps your users like!



con terra – Gesellschaft für Angewandte Informationstechnologie mbH

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Thank you for your attention!

More info:

<http://www.conterra.de/en/products/mapapps/index.shtm>

<http://developernetwork.conterra.de/>