

kadaster
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Interoperability in surveying

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Interoperability is the key for SDI's

Interoperability is the key for SDI's

But in surveying...?

It is still far from that!

Lawsuit & Verdict after a tender



vonnis

RECHTBANK GELDERLAND

Team kanton en handelsrecht

Zittingsplaats Arnhem

zaaknummer / rolnummer: C/05/313144 / KG ZA 16-592

Vonnis in kort geding van 28 februari 2017

in de zaak van

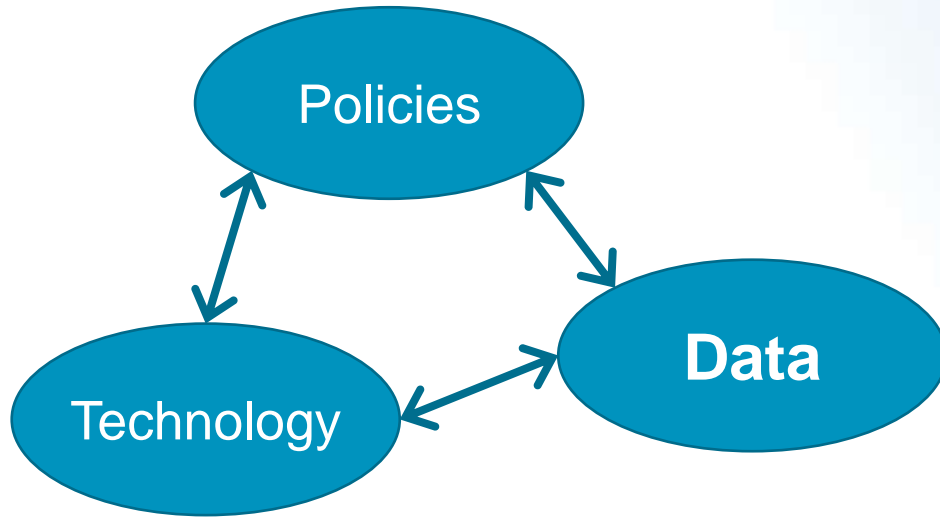
de besloten vennootschap met beperkte aansprakelijkheid
GEOMETIUS B.V.,
statutair gevestigd en kantoorhoudende te Alphen aan den Rijn,
ciscres,
advocaat mr. J.W.A. Bergevoet te Leiden,

tegen

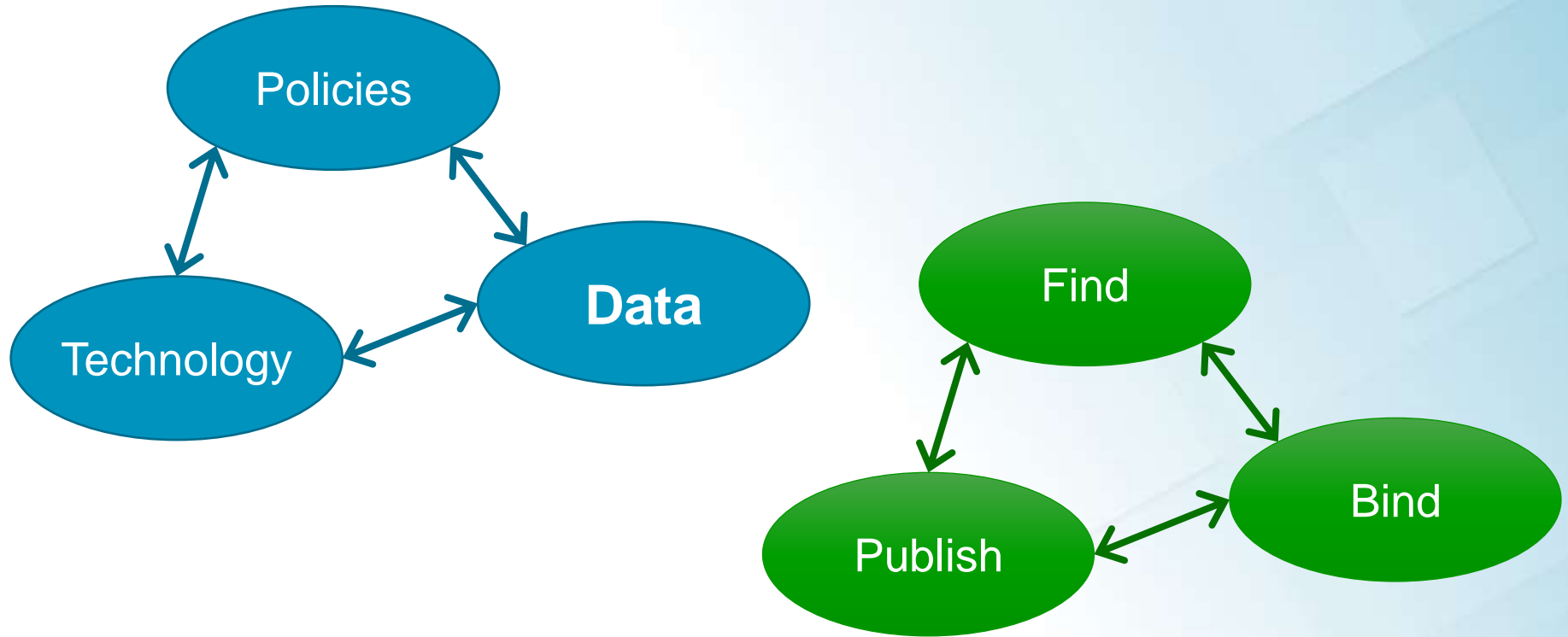
de publiekrechtelijke rechtspersoon
DIENST VOOR HET KADASTER EN DE OPENBARE REGISTERS,
zetelend te Apeldoorn,

Spatial Data Infrastructure concepts

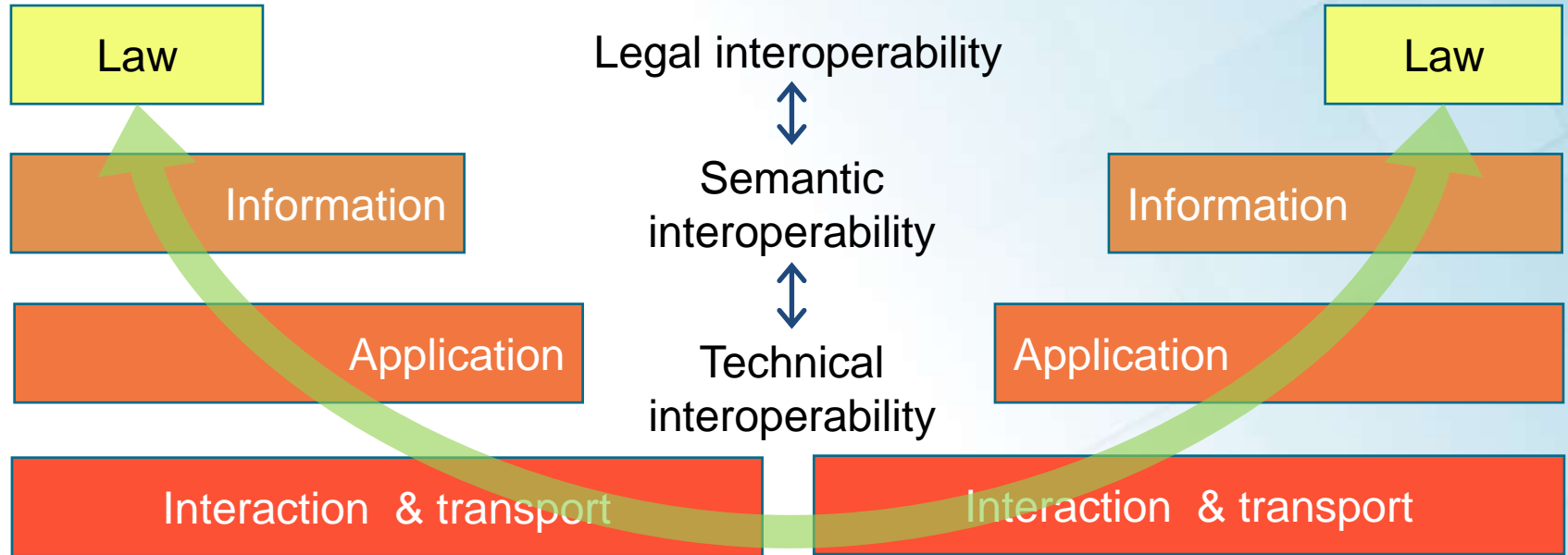
Spatial Data Infrastructure concepts



Spatial Data Infrastructure concepts



Interoperability



The issue in surveying...

Now: 3 in 1!

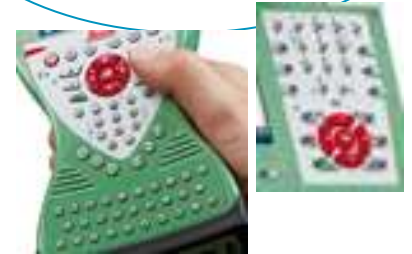


Survey
instrument

Controller

Firmware

- encoding observations
- operating system



Get separated!



Survey instrument

Any mobile device

Standard OS
Special software
Nice GUI



Windows 10
Mobile



Lawsuit & Verdict after a tender



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The 'Windows Mobile' operating system of the controller uses standard two authentication protocols for accessing the RTK signal. And that is Password Authentication Protocol (PAP) and Challenge Handshake Authentication Protocol (CHAP). The Dutch Kadaster supports only PAP. When the two protocols are offered, the connection is denied. It is stated that Windows Mobile 6.5 does not allow for switching between both protocols. This is only possible if the software is modified.

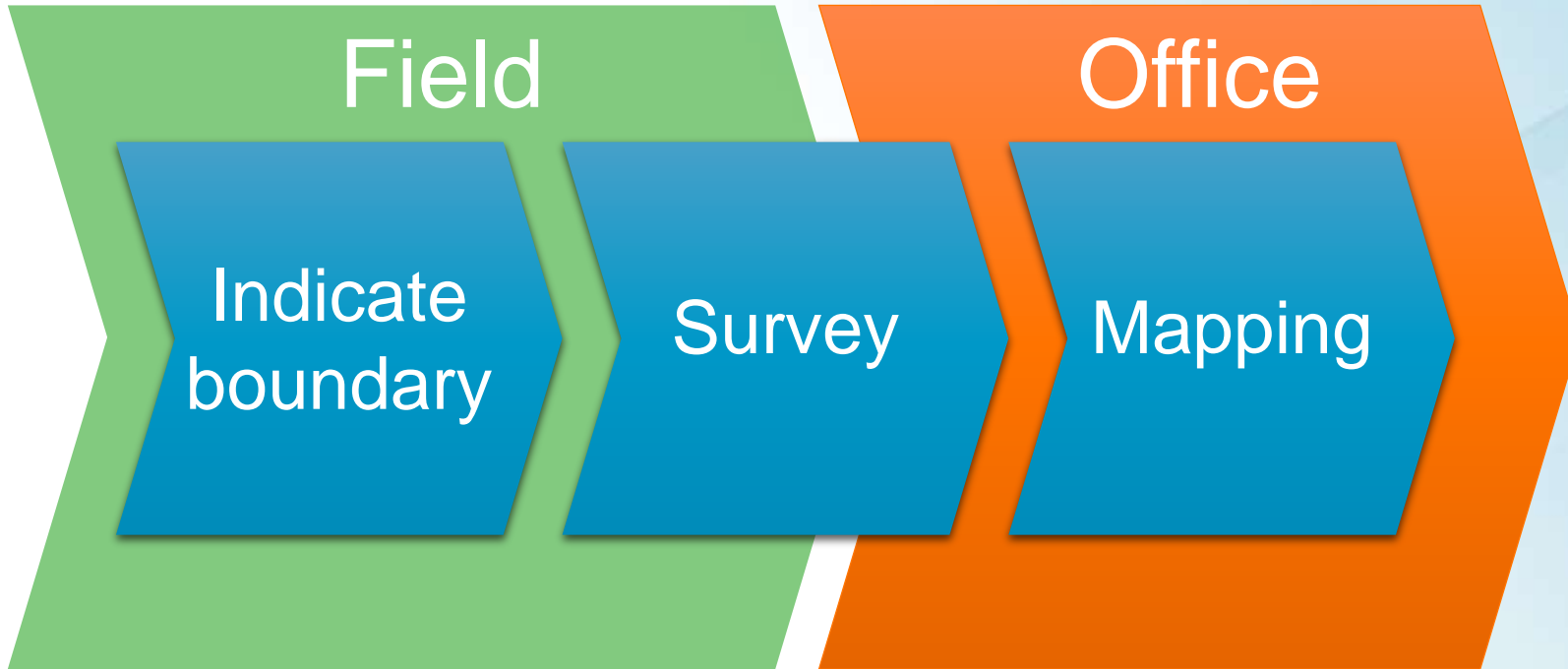
Proces

Indicate
boundary

Survey

Mapping

Proces





Field

Indicate
boundary

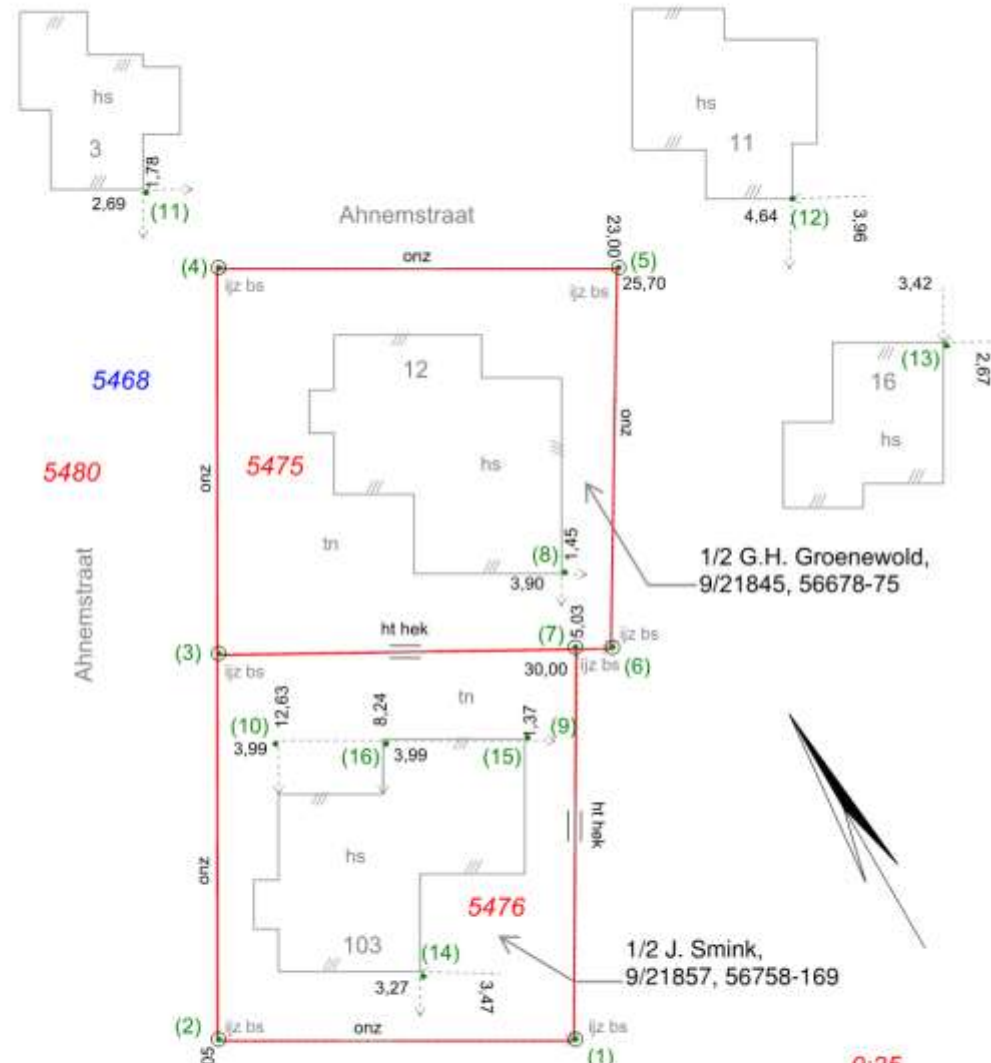
Field

Survey

GR	16		17							T
GR	14		15							T
GR	12		13							T
TS	20		1		0.00000		0.00000		R0	
Z0		0.00000		0.00150		0.00000	3D			
TS	1		20		0.00000		0.00000		R0	
Z0										
TS	20				PROJECTION RDNAPTRANS					
Z0					\$					
TS	20			1		188412.0217		441012.5620		
Z0				FC G00,7						
TS	20			2		188391.8041		441006.8568		
Z0				FC G00,7						
TS	20			3		188367.0294		441038.9630		
Z0				FC G01,1						
TS	20			4		188414.1247		441021.5462		
Z0				FC G01,2						
TS	20			5		188409.0794		441009.7376		
Z0				FC G01,2						
TS	20			6		188404.7458		441011.1575		
Z0				FC G01,2						
TS	20			7		188398.4938		441013.3598		
Z0				FC G01,2						
TS	20			8		188392.4915		441016.0215		
Z0				FC G01,2						
TS	20			9		188387.4337		441018.7016		
Z0				FC G01,2						
TS	20			10		188380.7124		441022.6666		
Z0				FC G01,2						
TS	20			11		188374.4947		441028.5760		
Z0				FC G01,8						
TS	20			12		188390.0680		441072.1020		
Z0										

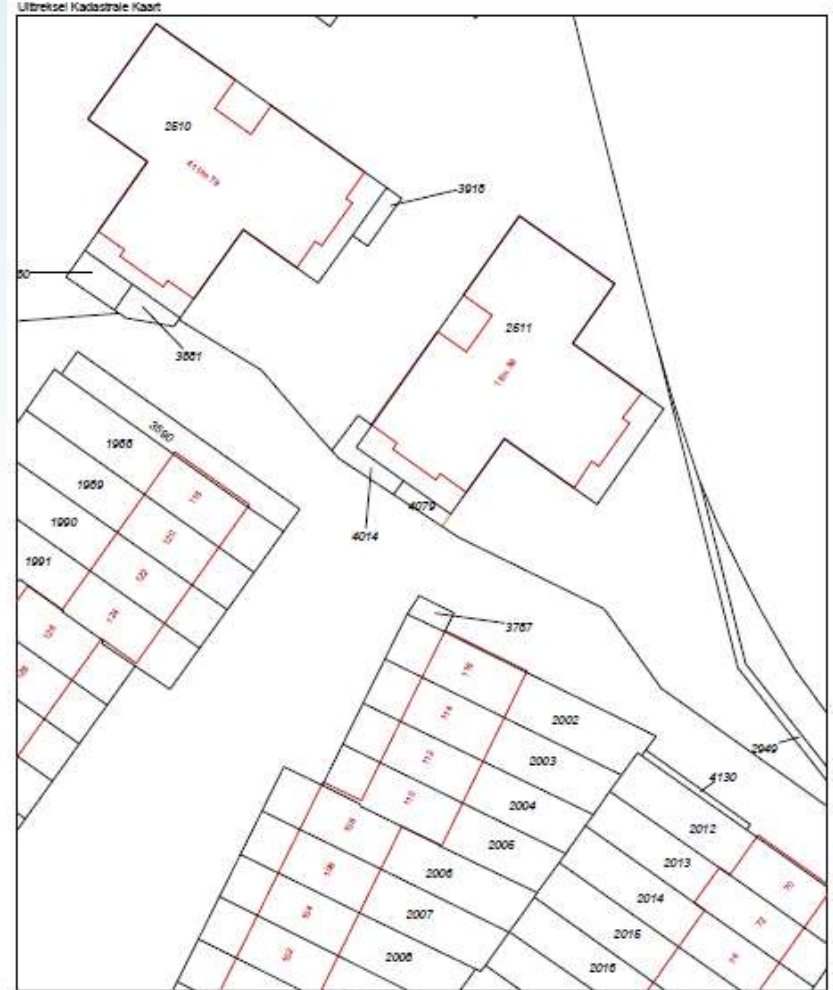
Office

Survey



Office

Mapping



12345 Deze kaart is vervaardigd op:
Perceelnummer:
Huisnummer:
Vergoedende kadastrale grens

Schaal 1:500

Kadastrale gemeente HILVERSUM

What do we want?

What do we want?

- Better & efficient measurements
 - Observations real time in cadastral map
 - Verification real time
- Interoperability / no vendor locking
 - Software
 - Data
- Less applications (partly by more automation)

Working in the field

Administrative

- * Tasks
- * Register who
- * Statement indicated boundary

Mapping

- * Showing survey on map layers
- * Derive sketch automated from survey

Surveying

- * Control survey instrument
- * Encoding observations
- * Precision & reliability

On- & offline data



Administrative

- * Tasks
- * Register who
- * Statement indicated boundary

Mapping

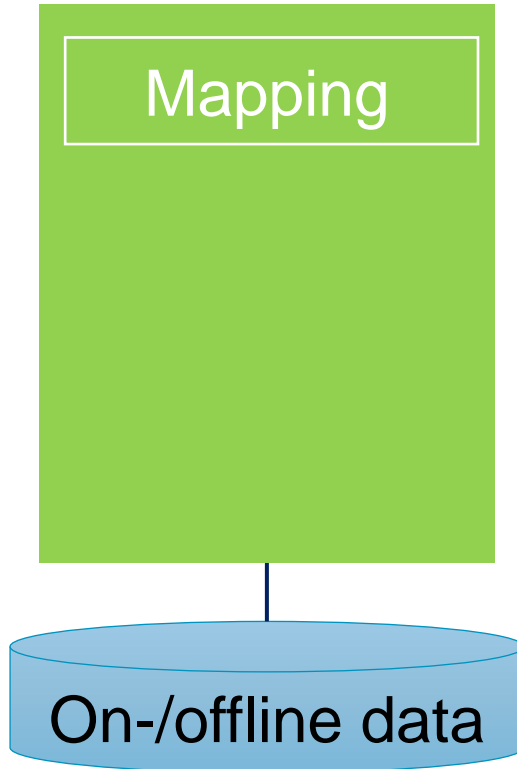
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- * Derive sketch automated from survey

Surveying

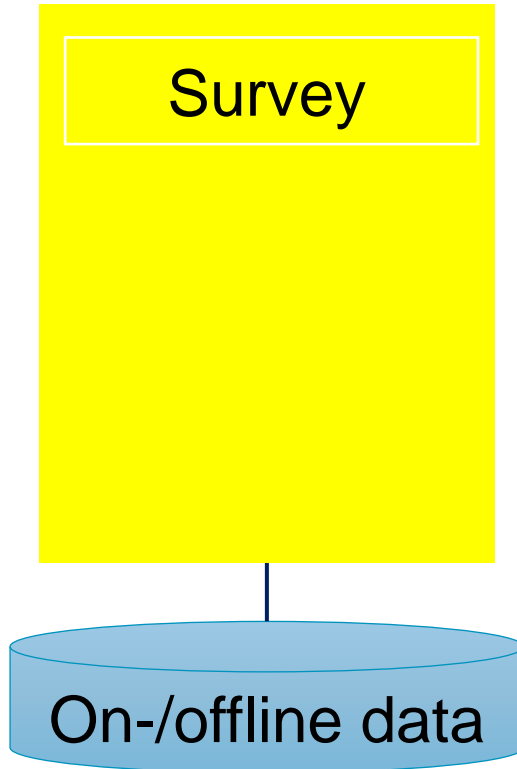
- * Control survey instrument
- * Encoding observations
- * Precision & reliability

On- & offline data





- GIS ≠ surveying
- Functional redundancy with mapping software back office
- Plural GIS/CAD-software options
 - All connection with survey instruments
 - But not (really) adapted for using in field on tablets



- Firmware from TS/controller
>> towards software on tablet
 - Highly productive
 - But not independent from vendor
- Details
 - Delivers measuring time
 - Proprietary cloud solutions

Different EU Tenders...

... for survey instruments

... for software

... for hardware

Survey
instrument



Software



Any device



Administrative

Mapping & Surveying

Penmap
&
Move3

On- & offline data



But still problems

- Connectivity tablet – survey instrument
 - Trimble: Radio
 - Leica: Long Range Bluetooth
 - Is part of tablet!
- Tablets are other EU tender
 - Leased from Capgemini
 - Capgemini = ‘office oriented’. Hard struggle to get real ruggedized tablets
 - Different duration of tenders!

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But still problems

- No open protocol for software – device
 - Trimble SDK
 - Leica GeoCOM, OWI
 - Topcon provides interface with Non Disclosure Agreement
- NMEA has only coordinates (no covariances matrix).
- No standard for controlling instruments
- Vendor's are 'reserved': who is to blame?

Conclusions

- Interoperability (=independency of vendors) is labour some
- No 'OGC'-standards for surveying
- EU tenders make it hard

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amsterdam
FIG
WORKING WEEK 2020
MAY 9 – MAY 15

Smart Surveyors for Land
and Water Management

