IHKU

Infrastructure Cost Management System

Alliance Project

Finnish Transport Infrastructure Agency
ESPOO ESBO
Helsinki
JYVÄSKYLÄ
TAMPERE
TURKU ÅBO
Vantaa
SOLITA
ARKANCE SYSTEMS
RAMBOLL
mittaviiva oy

ihku

Ihku Alliance in a Nutshell

What we do?

- Ihku alliance is developing a new cost management system and service producing **open** and **real- time** cost management data for infra sector.

How we do it?

- Development is carried out through an alliance model, which uses agile working methods

Our vision

- ”Building a Cost-effective Tomorrow”

Infrastructure Cost Management System Alliance Project

aka IHKU

Alliance Clients

- All public clients form a client consortium
- Clients are represented in the alliance board
- Client representatives also work as experts and are members of the project group

Väylävirasto
Trafikledsverket

Helsinki

JYVÄSKYLÄ

TAMPERE

TURKU
ÅBO

ESPOO
ESBO

Vantaa

Alliance Service Providers

ARKANCE SYSTEMS

- Software know-how
- Service management and customer support
- Marketing and sales

RAMBOLL

- Design expertise
- Communication

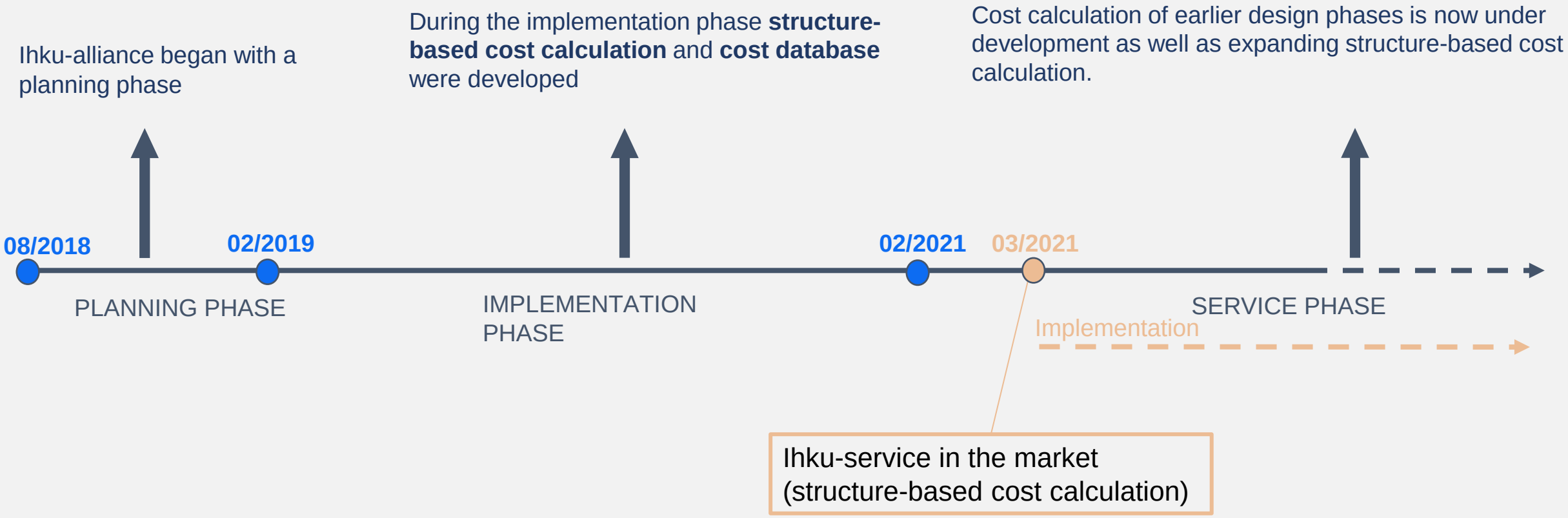
mittaviiva oy

- Database knowledge
- Cost calculation expertise

SOLITA

- Software development
- Agile development methods

Alliance Phases



Project Schedule

Competitive bidding started in 12/2017 and procurement was made 6/2018

Planning Phase 08/2018-01/2019

- Organizing and planning
- Defining the guideline for cost calculation logic
- Starting point for cost data acquisition

Implementation Phase 02/2019-2021

- Defining the cost calculation logic
- Acquisition of cost data
- Software prototypes, development versions
- (End) User testing
- Launch
- Service plan

Service Phase 2021-2028

- Detailed service plan
- Support services
- Upkeep of the software environment
- Cost data updates
- Further development

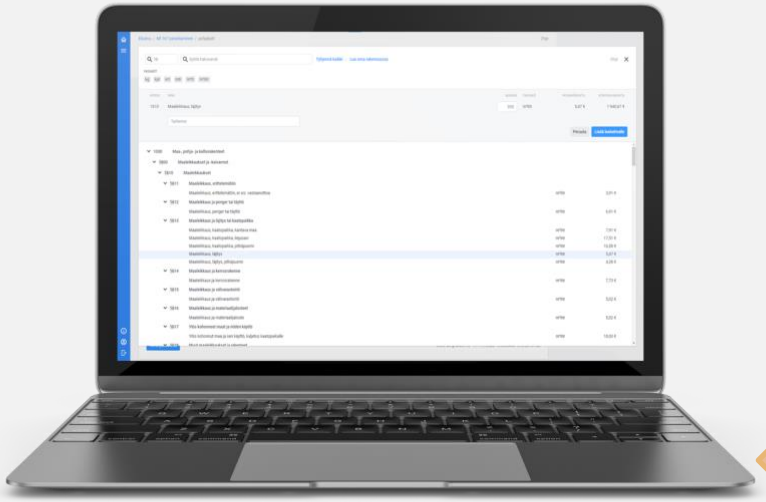
Ihku the Service

Ihku as a Service

COST DATABASE

ORGANIZATIONAL PROJECT DATABASES

**IHKU-
CALCULATION APPLICATION**



Services
- Customer support
- Training
- Operating service

API

Integrations

Parts of the service working in the background

Visible to the user

Benefits of Ihku

Open and real-time cost management to infrastructure projects!

KOODI	NIMI	MÄÄRÄ	YKSIKKÖ	YKSIKKÖHINTA €	YHTEENSÄ €
1613	Maaleikkaus, kaatopaikka, kantava maa	100	m³ktr	10,98	1 097,78

TUOTANTO-OSA				YKSIKKÖHINTA	YHTEENSÄ
Maankaivu ja kuormaus, maaleikkaus (1 m³ktr/m³ktr)				**2,38 €/m³ktr**	**237,78 €**
PANOS	RESURSSI/MENEKKI	PANOSHINTA	TYÖSAAVUTUS	YKSIKKÖHINTA	YHTEENSÄ
kaivinkone, KKH 17–21 t, sis. kuljettaja 70e/h	1	70,00 €/kone-h	45,00 m³ktr/h	1,56 €	155,56 €
työntekijä, rakennusapumies (RM), sis. sos.kulut, aputyö	1	37,00 €/tth	45,00 m³ktr/h	0,82 €	82,22 €
Kuljetus, kuorma-auto, KA 4-akselinen (1 m³ktr/m³ktr)				**4,60 €/m³ktr**	**460,00 €**
PANOS	RESURSSI/MENEKKI	PANOSHINTA	TYÖSAAVUTUS	YKSIKKÖHINTA	YHTEENSÄ
kuorma-auto, KA 4-akselinen, sis. kuljettaja 69e (kuljetuspanos)	3	69,00 €/kone-h	45,00 m³ktr/h	4,60 €	460,00 €
Vastaanotto kaatopaikka, kantava maa-aines (1 m³ktr/m³ktr)				**4,00 €/m³ktr**	**400,00 €**
PANOS	RESURSSI/MENEKKI	PANOSHINTA	TYÖSAAVUTUS	YKSIKKÖHINTA	YHTEENSÄ
vastaanottomaksu: kantava maa-aines	1,00 m³/m³ktr	4,00 €/m³		4,00 €	400,00 €

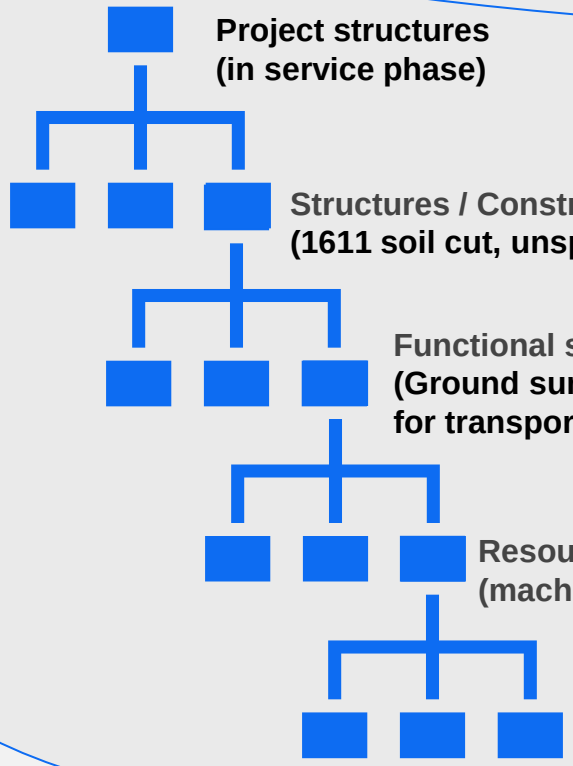
- Cost data increases
- More reliable
- Identifying cost related risks
- Analyzing how realistic the cost estimate is
- Costs of different design choices (cost management)

Ihku is currently available only in Finnish

Transparent and Reliable Cost Management for Infrastructure Projects

Resource-based Cost Estimates and Cost Database

Cost Database



Project structures
(in service phase)

Structures / Construction element
(1611 soil cut, unspecified)

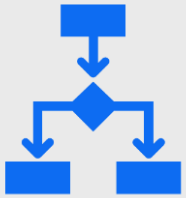
Functional system
(Ground surface system for transport)

Resource
(machine, material, work)

Initial data
(work capacity, material consumption and resource prices)

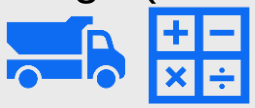
Calculation variables, such as:

- Project type
- Project environment
- Level of difficulty
- Scope



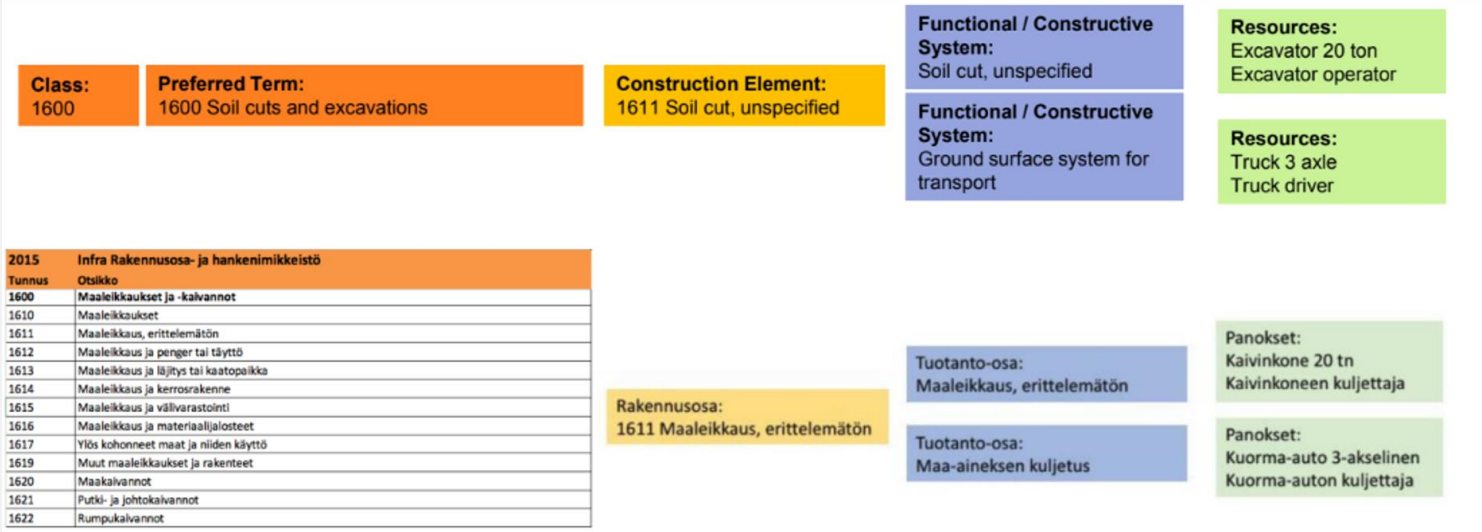
Classification systems

Haulage (calculator)



Resource-based Structures

- Structures are based on the Finnish Infra Classification System 2015 and other standards



2015	Infra Rakennusosa- ja hankenimikkeistö
Tunnus	Otsikko
1600	Maaleikkaukset ja -kaivannot
1610	Maaleikkaukset
1611	Maaleikkaus, erittelemätön
1612	Maaleikkaus ja penger tai täyttö
1613	Maaleikkaus ja läjitys tai kaatopaikka
1614	Maaleikkaus ja kerrosrakenne
1615	Maaleikkaus ja välivarastointi
1616	Maaleikkaus ja materiaalijalosteet
1617	Ylös kohonneet maat ja niiden käyttö
1619	Muut maaleikkaukset ja rakenteet
1620	Maakaivannot
1621	Putki- ja johtokaivannot
1622	Rumpukaivannot

- Efficient for estimating costs for different phases of construction design
- Structures for various infra projects (roads, bridges, streets, railroads, etc.)

Calculation Logic

- Resource-based calculation logic
  - Structures in cost database consist of production components and resources
- **Project type** and **project environment** as a starting point (calculation variables)
  - This combination determines the work result in all construction elements
- Calculation results are complemented and adjusted by the effect of other calculation variables
  - Level of difficulty, scope, …
  - Influences prices through work results or input prices

Building a Cost-effective Tomorrow

IHKU

Ihku-alliance

Transparent and Reliable Cost Management for Infrastructure Projects

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www.ihkuallianssi.fi/uutiskirje

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