Key Performance Indicators of Construction Contractors
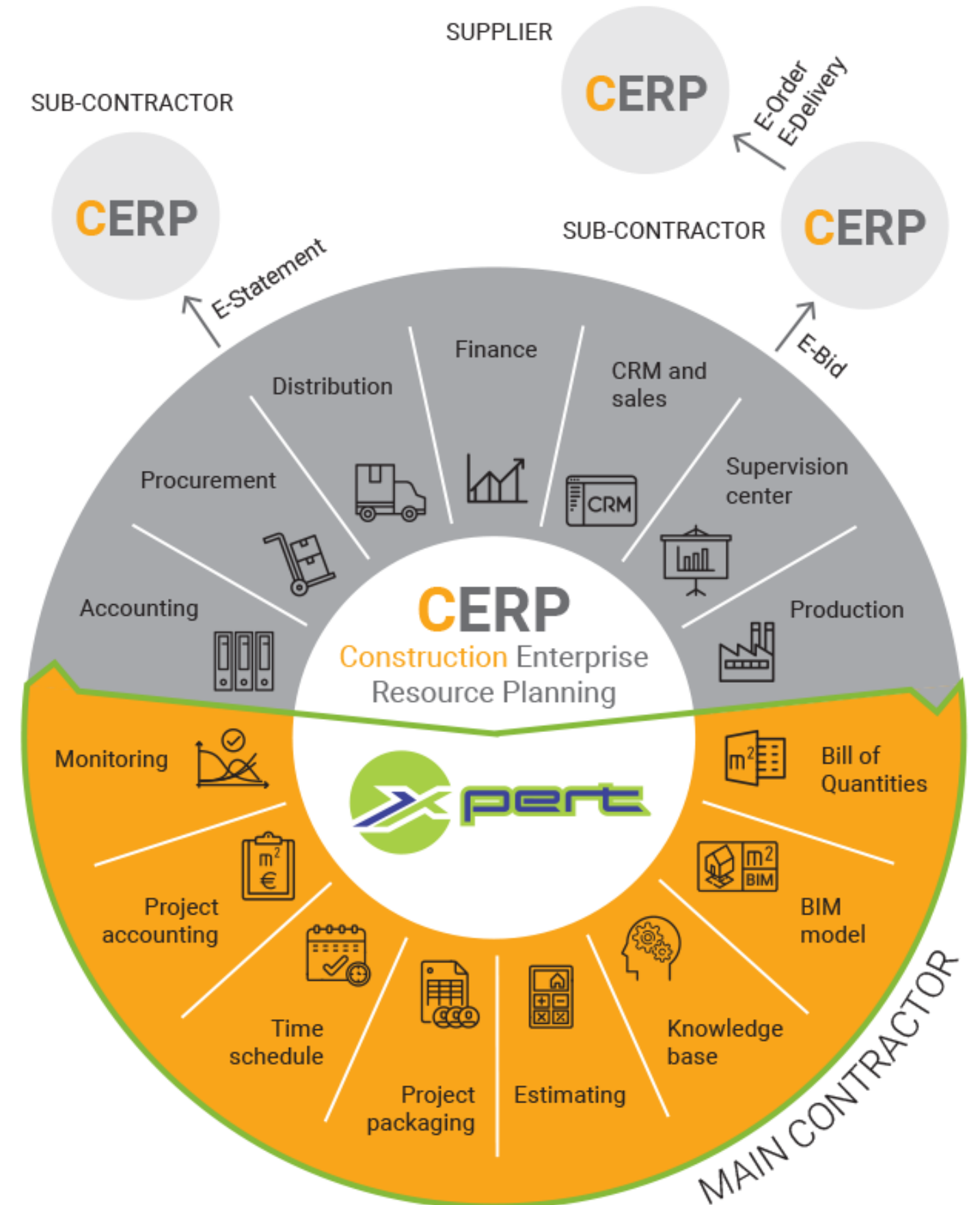
DIG-IN-KPI

Megra fair in Gornja Radgona
18.04.2024

Mirko Troha, u.d.i.grad.

Disappointment with what is understood by the term **digitalisation in the construction industry**

Robots

Drones

3D printing
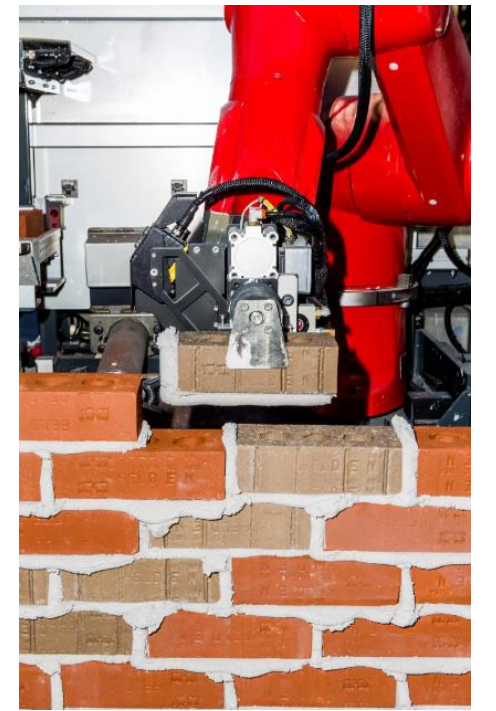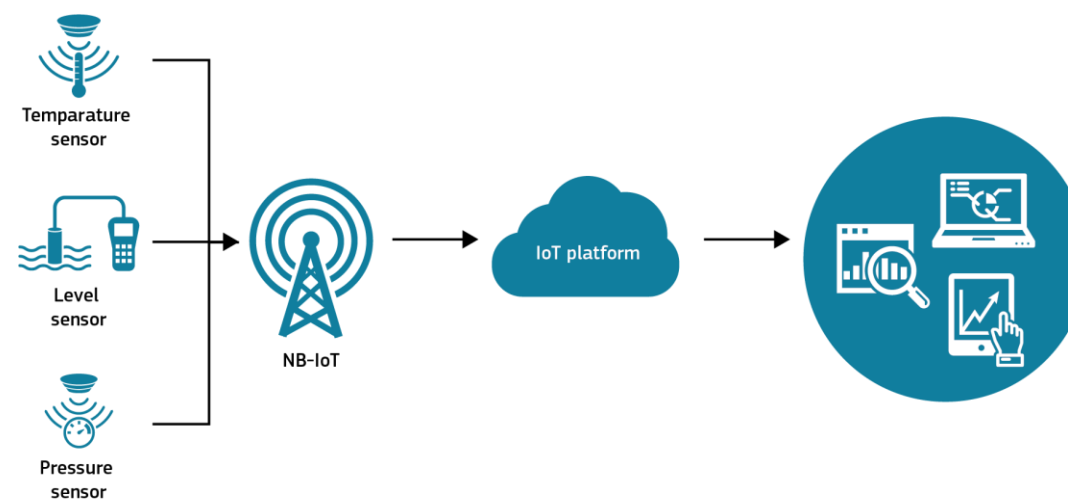
BIM

3D scanner

Sensors & Internet of things

What is BIM good for?

~~Only option to store and share data in central place - CDE~~

~~Monthly accounting of works by contractor~~

~~Checking and reviewing of accounting by supervisor~~

Clash detection

Time schedule of works

Better representation in 3D model

~~Time schedule of production resources (material, work, machines, vechiles, equipment)~~

~~Making of BoQ~~

~~Project report on planned and consumed resources according to quantities and cost~~

~~Calculating the quantities for BoQ items~~

~~Cost & schedule project monitoring -EVM~~

~~Calculating the price of BoQ item with resurce rates~~

~~Change management: cost, time, scope~~

What is BIM good for?

Clash detection

Better representation in 3D model

More acurate drawings and less mistakes

BIM - Building ~~Information~~ Modeling

What information?

3D model

~~4D model – time schedule without resources~~

~~5D model – only prices, without resources~~

BIM = 3D parametric modeling

BIM is a tool for designers, not contractors

BIM is a useful tool for:
- prepearing BoQ
- calculating BoQ item's quantities

What is useful tool for contractors?

What are contractors procesess?

Are those procesess digitalised?

Reverse: Process → Technology

Digitalisation of construction contractor companies means digitalising the project and business processes that represent the core activity of these companies.

Main areas of procesess	Technologies			
	Low level of digitization	Middle level of digitization	Higher level of digitization	High level of digitization
Project management				
Bill of Quantities				
Financial evaluation				
Time scheduling				
Billing of construction works				
Financial and schedule monitoring of the project				
Business management				

KPI for digitalisation for construction contracting companies

KPI - Key performance indicators
KPI are measurable indicators of working efficency on procesess

1. KPI for the area of construction – contractors.
2. KPI will define what digitalization in construction is.
3. Measurable levels of digitalization will be defined.
4. By measuring KPIs in contracting companies a degree of digitalization will be established.
5. Guidance to the state to finance the research to cover digitalisation deficiency.
6. Guidance to contractors to emphasize digitization on the areas which lag behind.
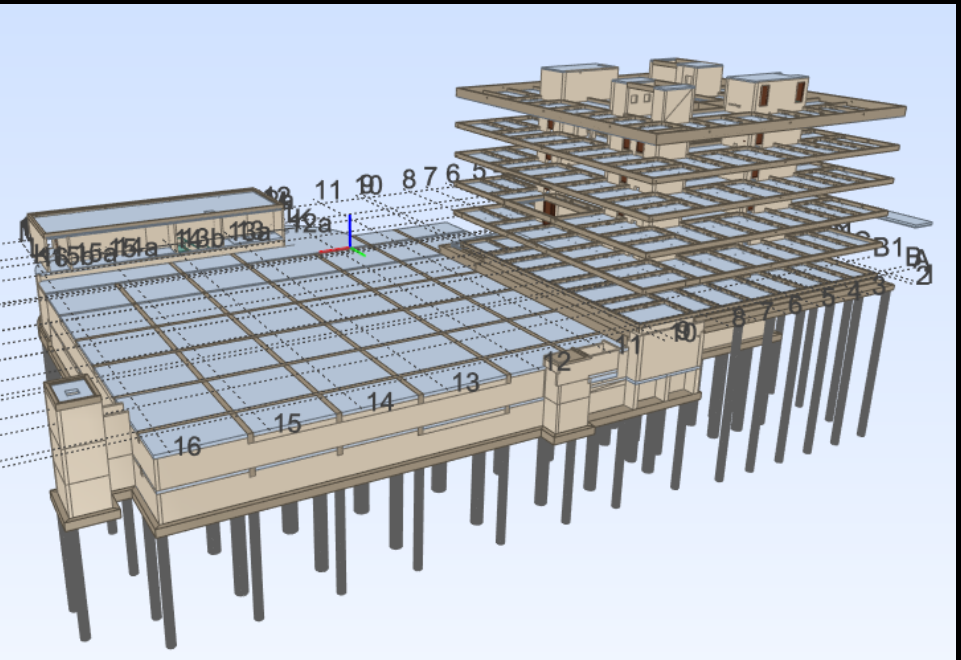
Principles for defining the indicators

1. KPI should refer to a process or database
2. KPI is presented from the viewpoint of the user (contractors)
3. KPI must be realisticaly feasible
4. KPI must demonstrate cost or time benefit for user
5. KPI must be measurable

Technologies such as BIM, robotics, IoT, AI, 3D printing, blockchain and quantum computing can be found to have too little impact and benefits for contractors to qualify as KPIs. In addition, we can say that these functionalities are not widely used and therefore do not represent a realistically feasible process.
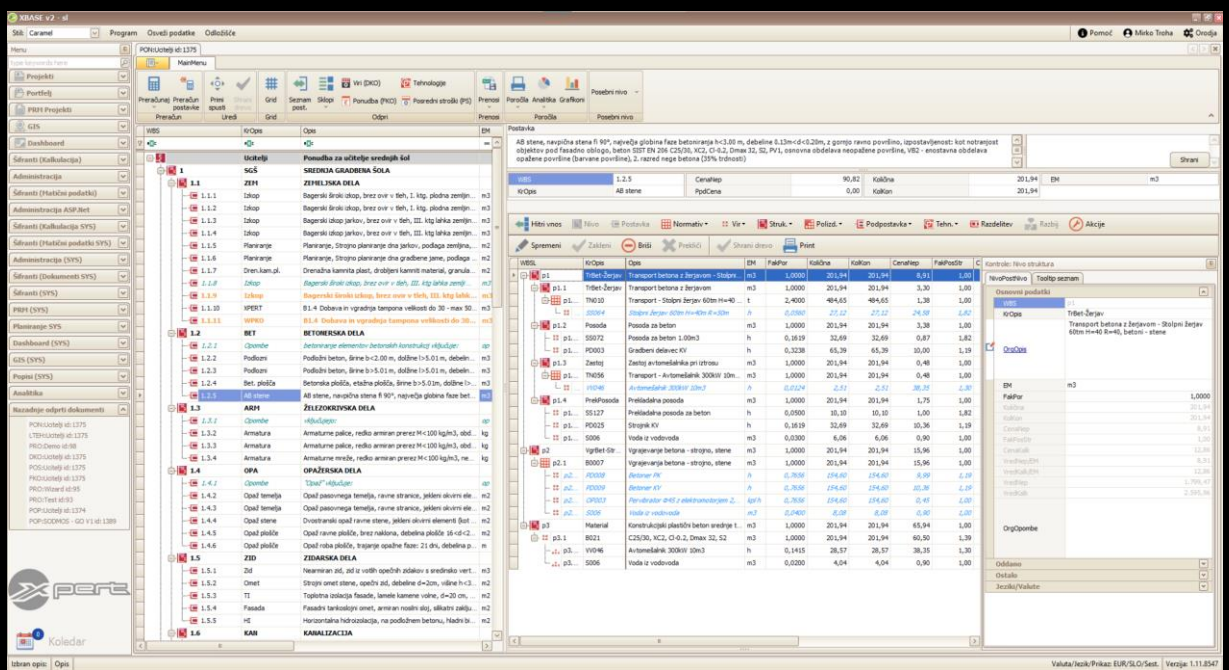
Meaningful Digitalisation in Construction

BIM

CERP

ERP

3D model

Project management

Business management

Arhitektura
Gradbene konstrukcije
Elektro inštalacije
Strojne inštalacije

Popisi del
Baza kalkulativnih virov
Baza normativov
Gradbena kalkulacija
Terminsko planiranje
Izračun izvedenih del
Obračun gradbenih situacij

Podizvajalci
Tabele predvidene in dejanske porabe virov
Metoda prisluzene vrednosti - S krivulja
Povezava terminskega plana in predračuna
Evidentiranje potrebe po proizvodnih virih
Obvladovanje sprememb
Skupno podatkovno okolje

Računovodsko poslovanje
Skladiščno poslovanje
Naročanje produkcijskih virov
Prodaja izdelkov
Odnosi s kupci
Baza stvarnih virov
Baza komercialnih virov