

DANI ARHITEKATA 7

ZADAR
TRAVANJ
2023



Digitalni život zgrada

Prednosti i izazovi digitalne tehnologije

I moj eksperiment za uvod korištenjem „kolege” ChatGPT

Gianmarco Ćurčić Baldini, d.i.a.

"Architecture is not just about creating a space to protect people but to move them emotionally." - Zaha Hadid

"The mother art is architecture. Without an architecture of our own, we have no soul of our own civilization." - Frank Lloyd Wright

"Architecture is the thoughtful making of space." - Louis Kahn

Citat **Zahe Hadid** sugerira da arhitektura nije samo **pružanje funkcionalnog prostora, već i stvaranje emocionalnog iskustva** za korisnike zgrade. Iz perspektive klijenta, to bi moglo značiti da prioritet daju **dizajnu i estetskoj privlačnosti zgrade** te da su spremni ulagati u značajke koje stvaraju snažan emocionalni učinak.

Citat **Franka Lloyda Wrighta** naglašava važnost arhitekture kao odraza duše civilizacije. Iz perspektive klijenta, to bi moglo značiti da traže **zgradu koja odražava njihove vrijednosti i identitet**, te može dati prednost arhitekturi koja je **jedinstvena i kulturno značajna**.

Citat **Louisa Kahna** sugerira da je dobra arhitektura **promišljeno korištenje prostora**. Iz perspektive klijenta, to bi moglo značiti da daju prednost učinkovitosti i funkcionalnosti u dizajnu zgrade i da **traže arhitekta koji može optimizirati korištenje raspoloživog prostora** kako bi zadovoljio njihove potrebe.

U konačnici, cilj i arhitekta i korisnika zgrade je stvoriti prostor koji poboljšava kvalitetu života i doprinosi dobrobiti onih koji ga koriste, bilo da se radi o domu, uredu, školi, ili bilo koje druge vrste građevine.

Sada kada smo istražili važnost arhitekture i iz perspektive klijenta i iz perspektive arhitekta, jasno je da je krajnji cilj stvoriti zgradu koja zadovoljava potrebe i želje svojih korisnika.

Međutim, ostaje pitanje **kako arhitekti mogu osigurati da će njihovi projekti rezultirati uspješnom zgradom** koja zadovoljava potrebe svojih stanara?

Ovdje dolazi do izražaja koncept "**Digitalnog života zgrade**" ili tehnologije digitalnih blizanaca. Korištenjem **digitalnih blizanaca**, arhitekti mogu stvoriti točnije i učinkovitije projekte, što dovodi do poboljšanog zadovoljstva korisnika i boljih ukupnih performansi zgrade.

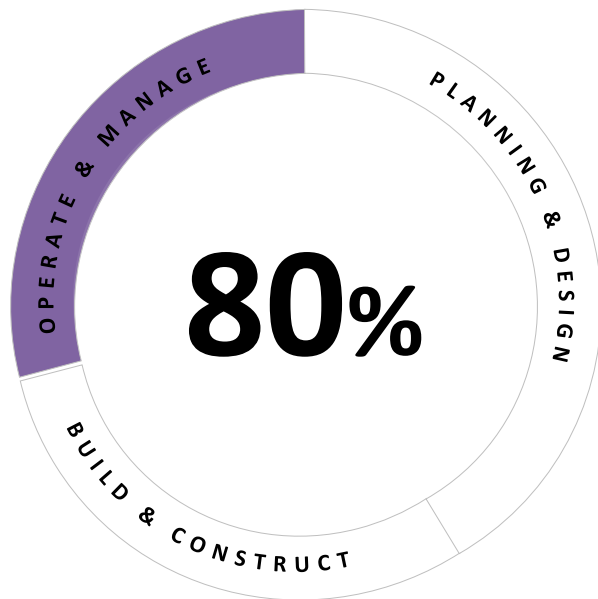
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Digitalni blizanci su u osnovi **virtualne replike** fizičkih zgrada i **omogućuju nam simuliranje i optimiziranje** performansi zgrade tijekom cijelog njenog životnog vijeka.

Razumijevanjem principa digitalnih blizanaca i njihove uloge u digitalnom životu zgrade, bit ćete bolje opremljeni da budete **korak ispred ostalih** i iskoristite mogućnosti koje ova tehnologija pruža.

Dakle, zaronimo u uzbudljivi svijet digitalnih blizanaca!



80% troškova u životu zgrade otpada na njenu fazu korištenja

(...a koliko košta projektiranje? Radimo na maloj šniti kolaća, a utječeno na puno)



Data Loss



Multiple parties not working together



Bad Design



Reactive Maintenance



Unforeseen Usage



Lack of convenience leading to underusage



Static facility schedules

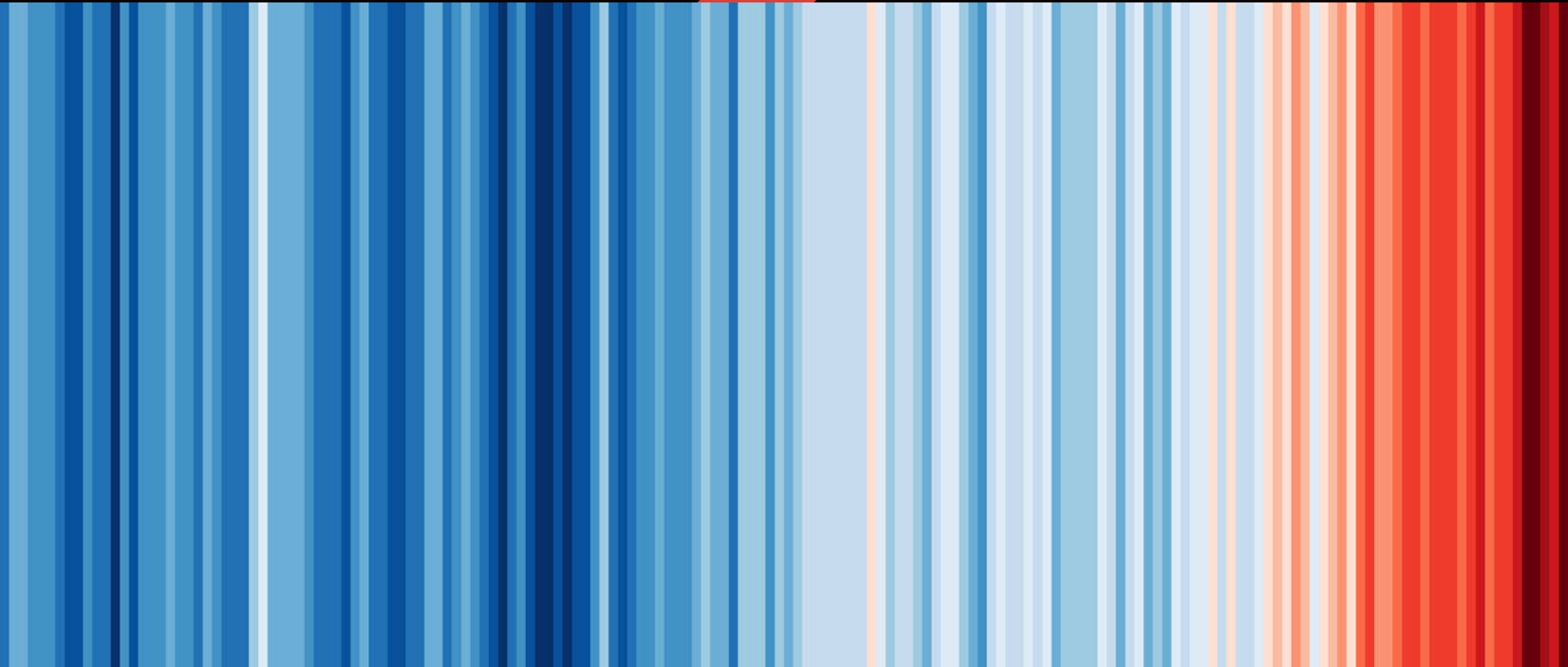


760% productivity increase over the last 60 years

Vs.

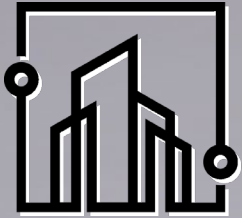


60% productivity increase over the last 60 years



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BUILDING
LIFECYCLE
INTELLIGENCE

“The biggest
change in the
AEC world is
happening
now with BLI”



Treba nam dinamički,
radni (BIM) model ili replika
(koji se prilagođava u
realnom vremenu) svega
onoga što se događa u
fizičkom svijetu za svakog
dionika: vlasnika, stanara,
izvođača, arhitekta,
konstruktera...

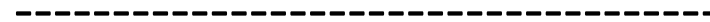


FAZA PROJEKTIRANJA

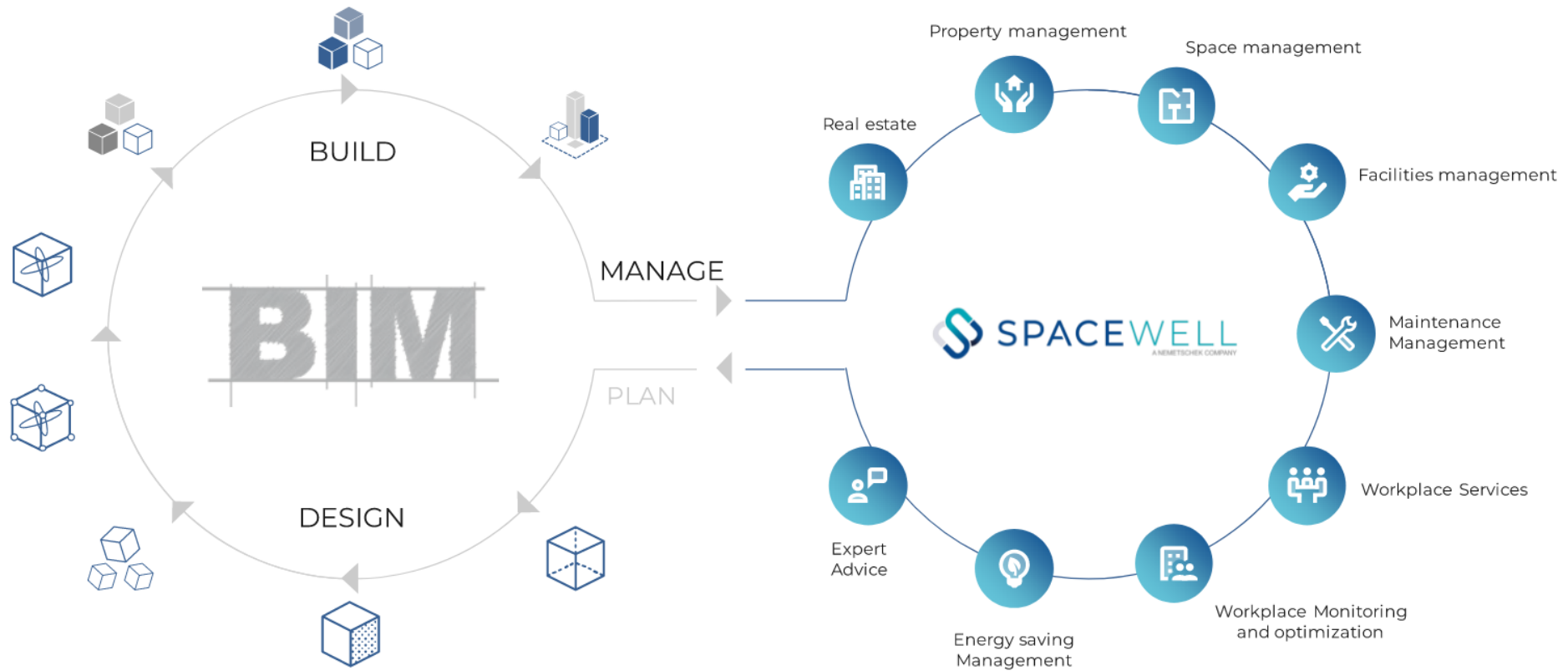


BIM SIMULACIJE

FAZA KORIŠTENJE

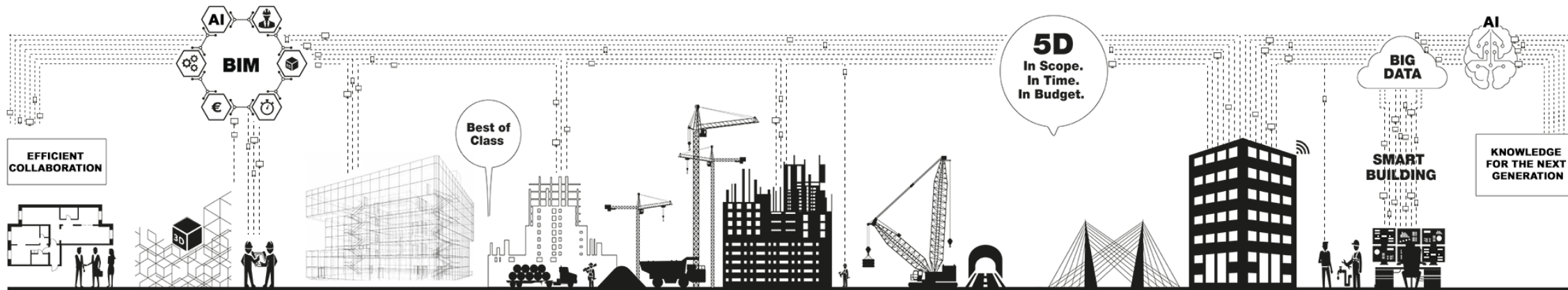


MJERENJA I OPTIMIZACIJE



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Planiranje i projektiranje

VOĐENJE
PLANIRANJE

RAZVOJ
MODELIRANJA I
PROJEKTIRANJA

PRORAČUNSKA
ANALIZA

INŽENJERSTVO,
KONZULTACIJE,
PROIZVODNJA



Gradnja

KONTROLA KVALITETE
DETEKCIJA KOLIZIJE

PROCJENA I
VREMENSKI PLAN

SURADNJA I
DOKUMENTACIJA



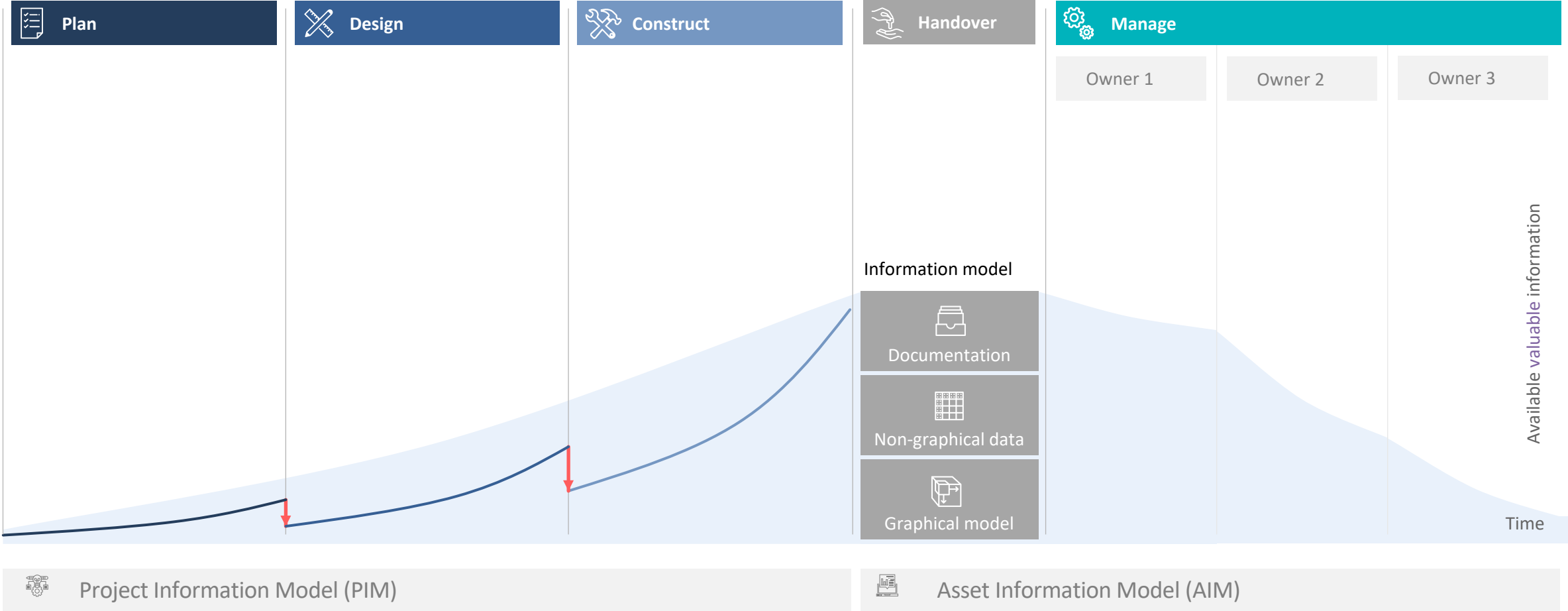
Upravljanje

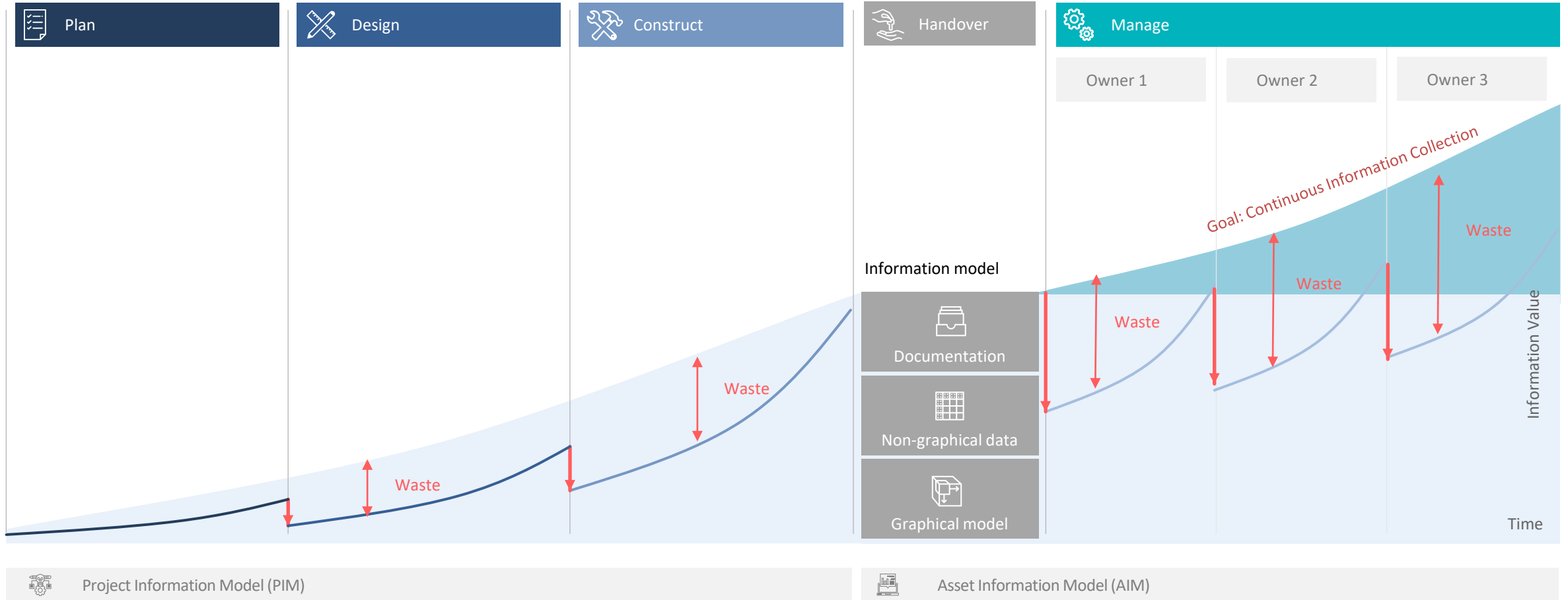
IMOVINA I
UPRAVLJANJE

IWMS
PAMETNA GRADNJA

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Project Information Model (PIM)

Asset Information Model (AIM)

Growing Building Lifecycle Intelligence



Facilities

Ensure service excellence to boost the occupant experience



Maintenance

Optimize the life-cycle performance of buildings & installations



Real Estate

Manage the financial and operational performance of your buildings



Space

Successfully monitor and manage the rapidly changing workplace



Reservations

Ensure an optimal meeting and visitor experience



Assets & BIM

Accurately track and manage all your organization's assets

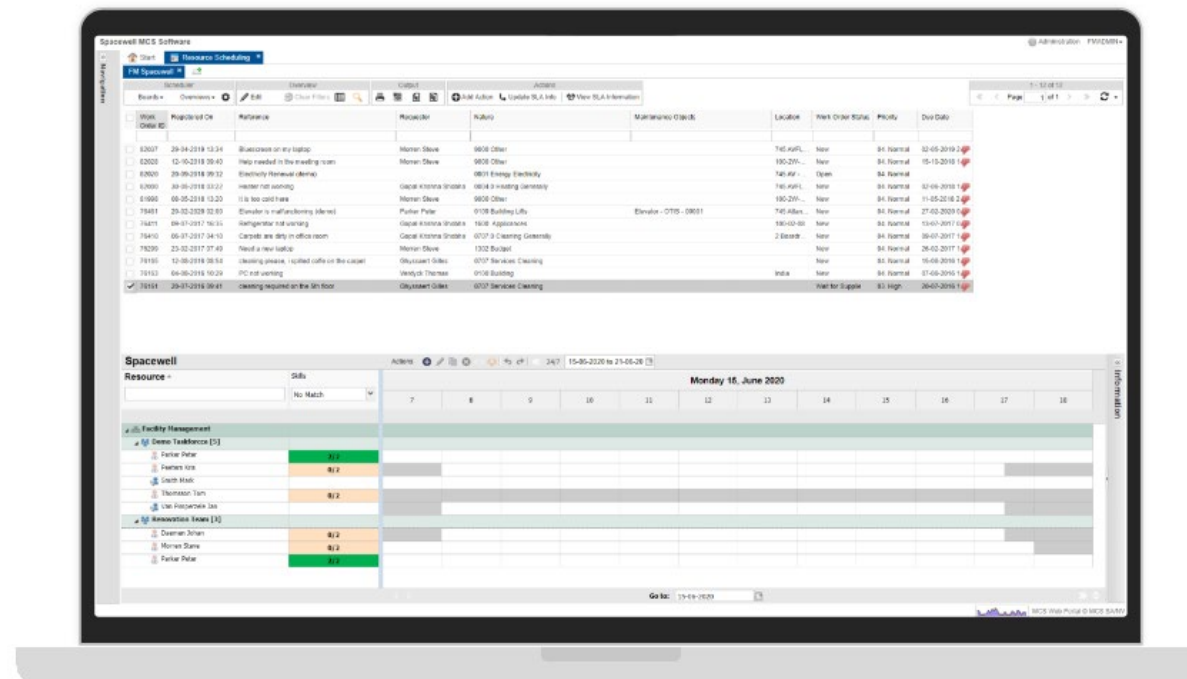


Workplace Experience

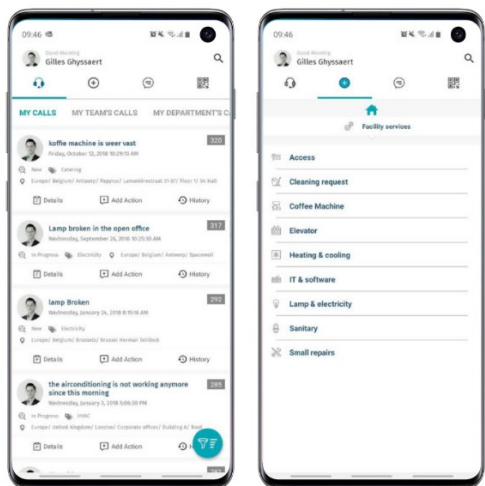
Increase employee productivity with the workplace at their fingertips

Treba li zgrada znati kako i kada se koristi

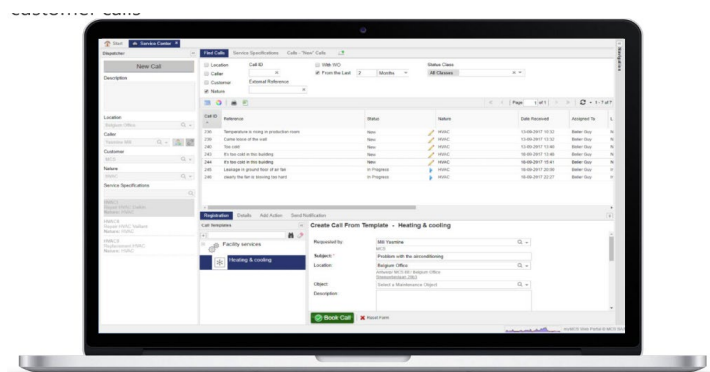
- Primanje radnih naloga
- Raspodjela posla
- Planiranje resursa i kapaciteta
- Upravljanje troškovima
- Postavljanje specifičnih procesa
- Korištenja senzora



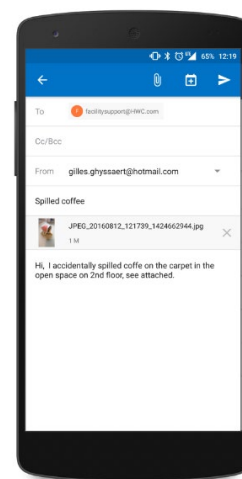
Upravljanje aktivnostima i troškovima



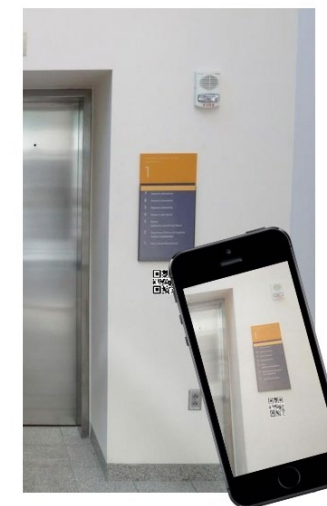
Rezervirajte usluge putem
mobilne aplikacije



Izradite radni nalog
putem računala



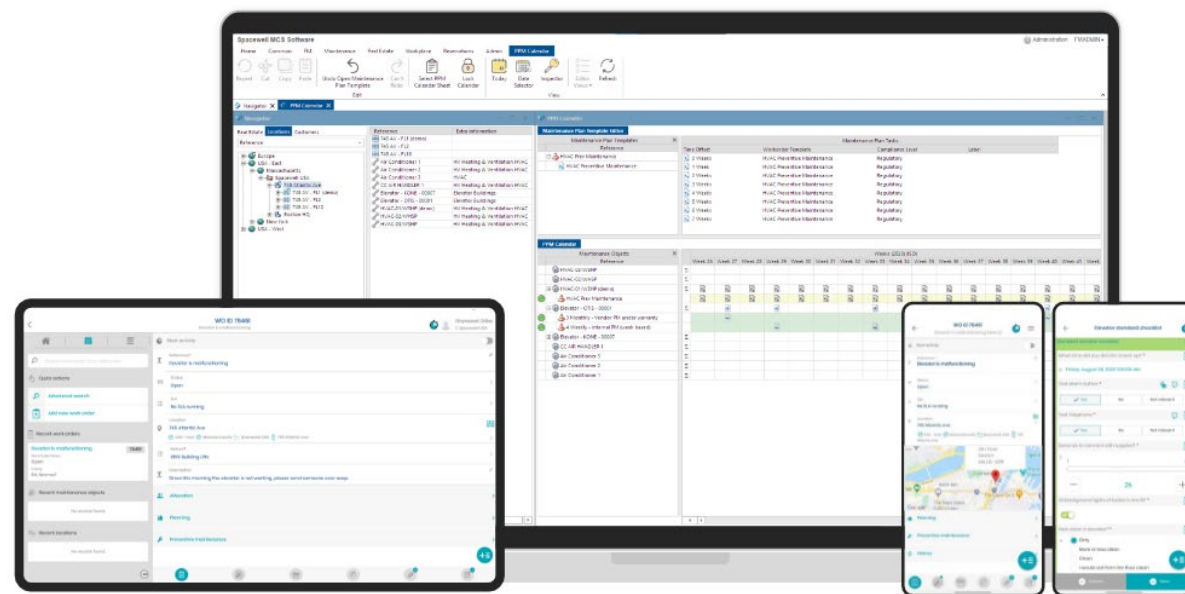
Izradite radni nalog
slanjem maila



Izradite radni nalog
skeniranjem QR koda

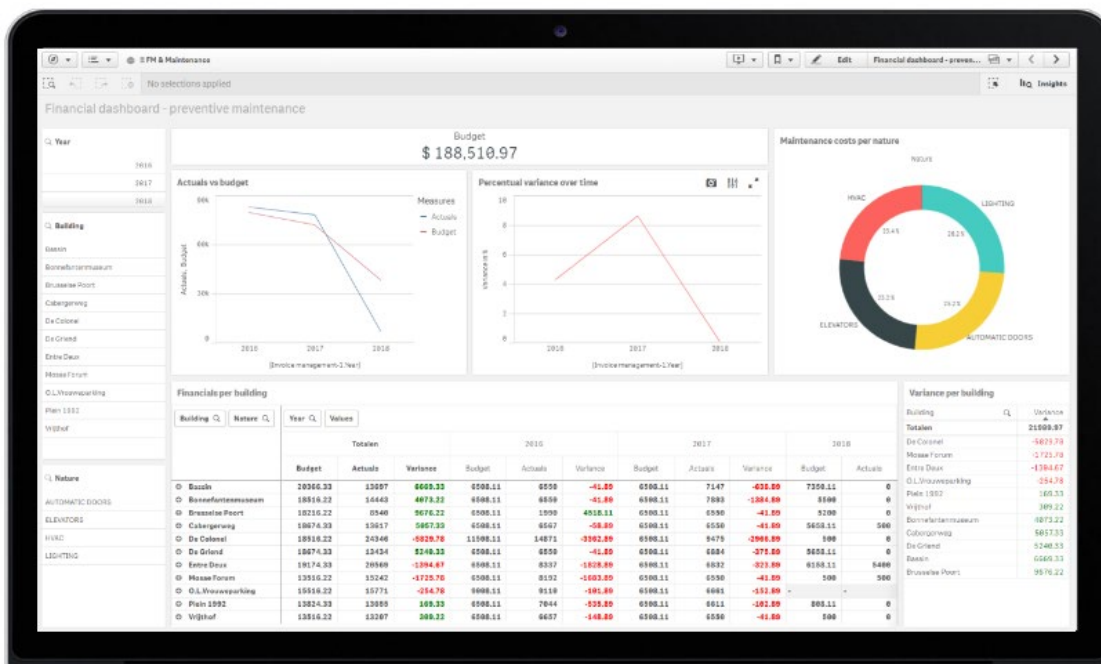
Održavanje nekretnina, prepoznavanje budućih troškova

- Praćenje stanja imovine
- Višegodišnji planovi održavanja – import/unos vremenskog rasporeda
- Kreiranje radnih naloga i automatsko obavještanje ugovorenih strana
- Upravljanje sa Service Level Agreement (SLA)
- Procesi
- Vrijeme, troškovi, računi, dokumentacija



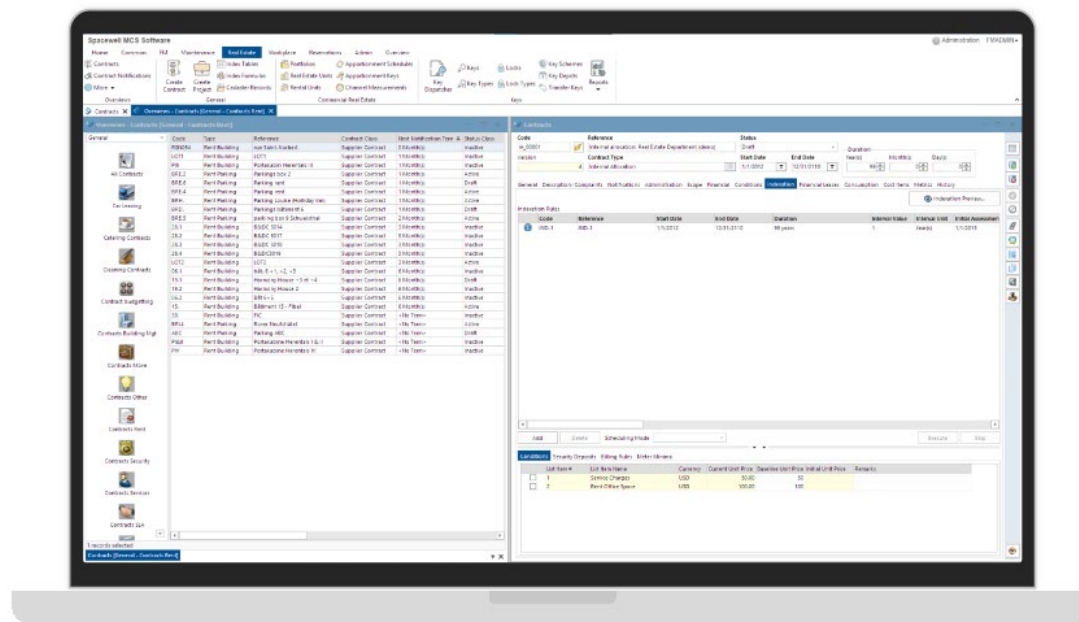
Kontrola troškova i izvještaji

- Pratite vaše troškove održavanja
- Bilježite planirane i stvarne troškove
- Pripremite budžet
- Jednostavno dijelite i spremajte rezultate



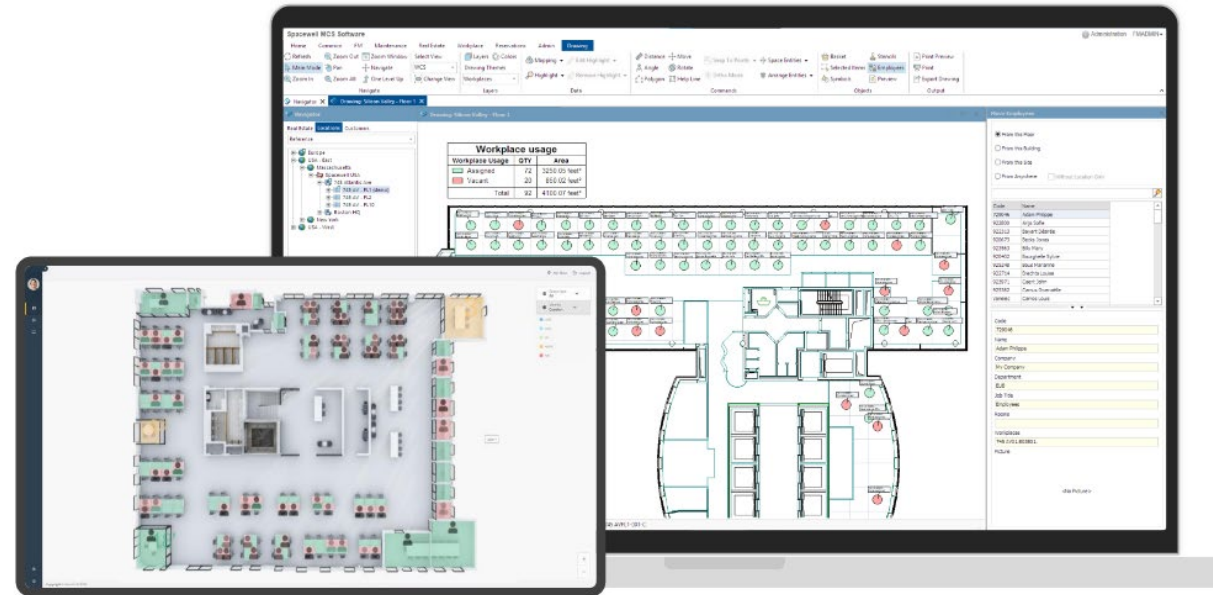
Upravljanje skupom nekretnina

- Centralno upravljanje ugovorima o najmovima (revizije, uvjeti, plaćanja, produženje)
- Donošenje sveobuhvatnih odluka o imovini (obnoviti, proširiti, kupiti, izgraditi, prodati, vratiti u najam)
- Automatizacija raspodjele troškova najma i naknada
- Uvid u sve troškove (najma, projekta, održavanja, režija)



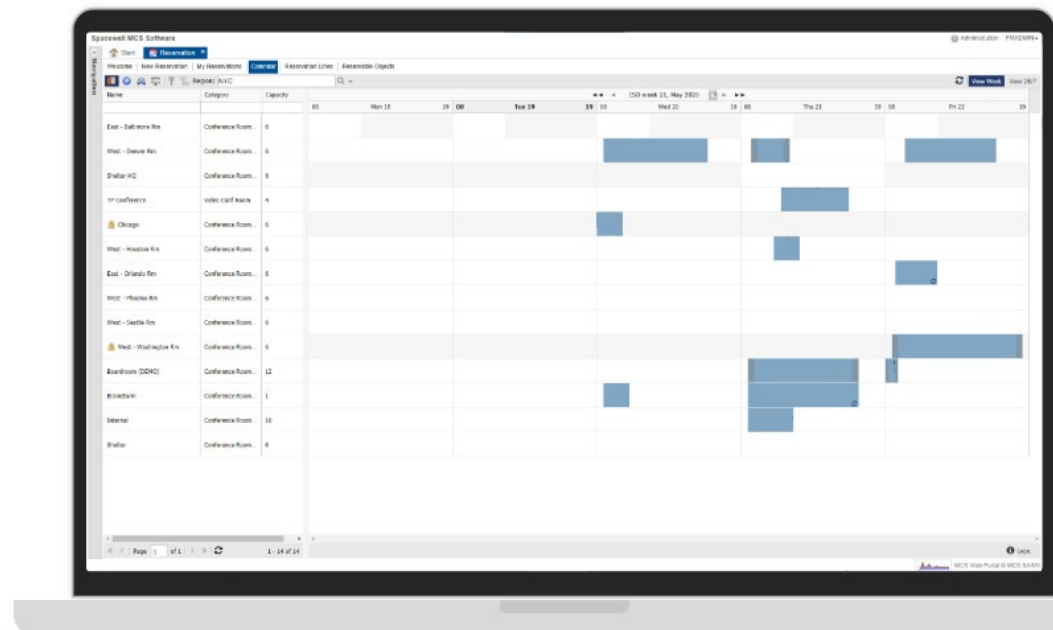
Upravljanje postojećim prostorom

- Rezervacija prostora ili mjesta
- Mjerenja zauzetosti prostorija
- Lociranje i praćenje imovine radnog prostora
- Upravljanje promjenama
- Upravljanje prostorima



Upravljanje postojećim prostorom / rezervacije

- Jednostavan pristup korisnicima
- Izbjegavanje preklapanja i smanjenje vremena pretraživanja / pronalazak kolega
- Automatizacija usluge i zadataka
- Real time pregled situacije
- Imajte uvid u iskoristivost m2
- Kontrola troškova i računa
- Poboljšanje performansi prijema



MONITOR

Building utilization & ambient conditions



Space

Occupancy, utilization, social distancing



Comfort

Temperature, humidity, CO₂



Air Quality

TVOC, air pressure, radon



ASSIST

Employees & visitors



Real-time guidance

Wayfinding, locate people, availability, crowdedness



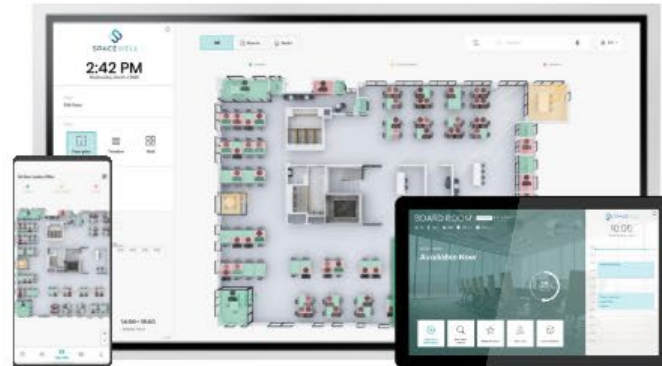
Booking

Rooms, workspaces, tickets



Personalized experience

Recommendations, community feedback



TRANSFORM

Services & way of working



Cleaning & facility services

Dynamic servicing, mobile work & safety instructions



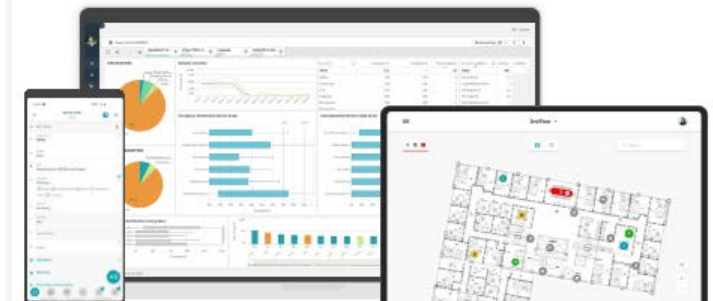
Hospitality services

Real-time response, floor plan based guidance

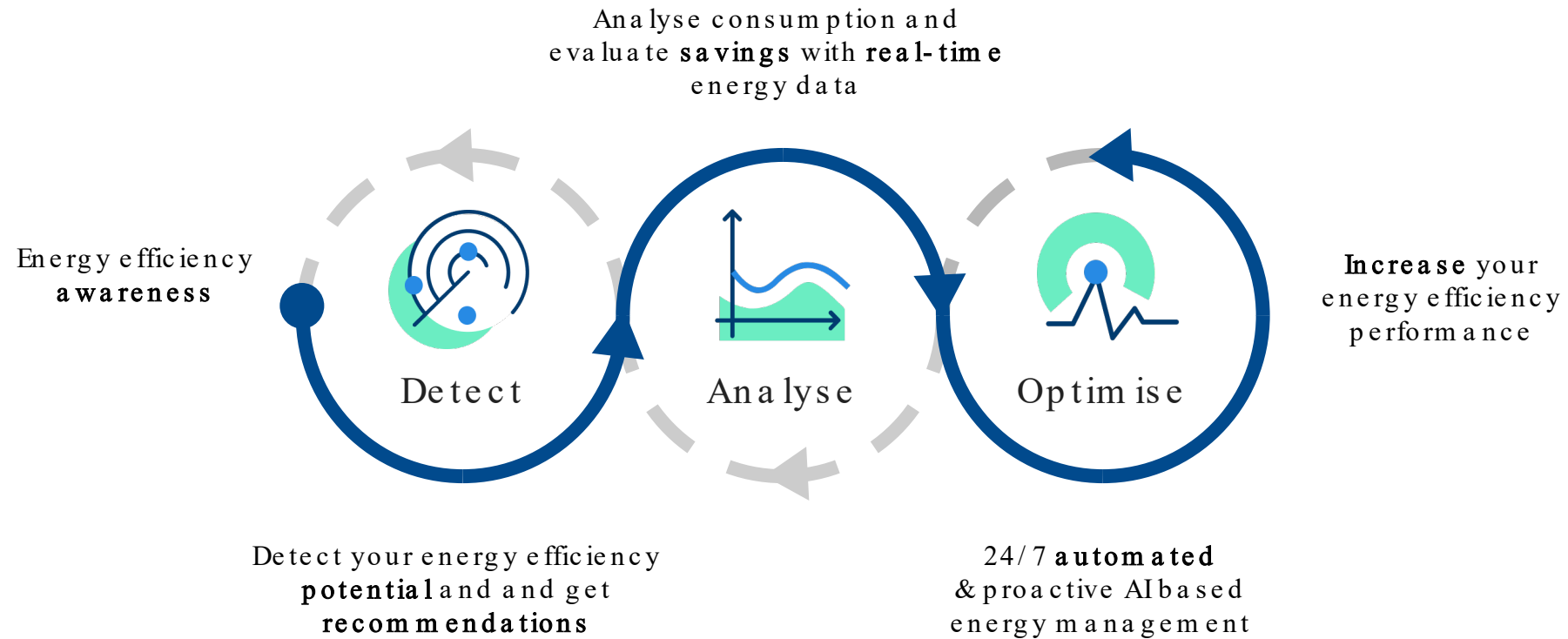


Workplace concepts

Activity based, capacity planning, redesign



The energy intelligence journey



DATA COLLECTION

Anonymous, vendor agnostic



REAL-TIME MONITORING

Space, Comfort, Air quality



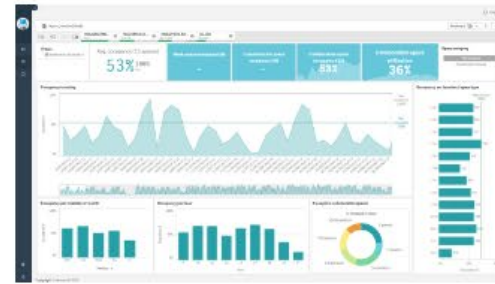
Space utilization



Air Quality

DATA INSIGHTS

Space, Comfort, Air quality



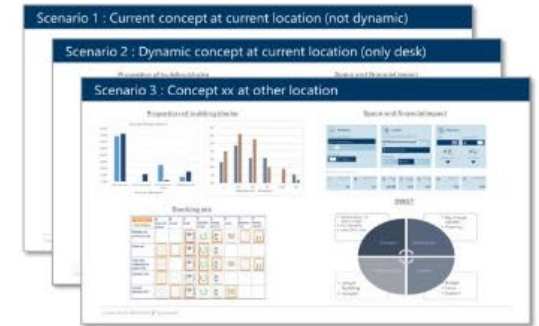
Data analytics



Industry standard reports

RECOMMENDATIONS

Workplace concepts, HVAC tweaks



Workplace Concepts

Workplace concept	Surface area (sqm)	Energy EM (kWh/year)	Leasing fit-out (kEuro)
None (current today)	130,834	N/A	N/A
Dynamic concept A	116,130	\$ 842,479	\$ 1,179,499
Dynamic concept B	98,180	\$ 2,403,080	\$ 3,015,119

Saving opportunity simulations

TRANSFORM

Services & way of working

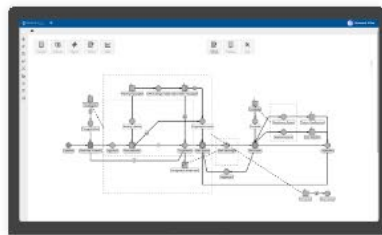
DATA COLLECTION

Anonymous, vendor agnostic

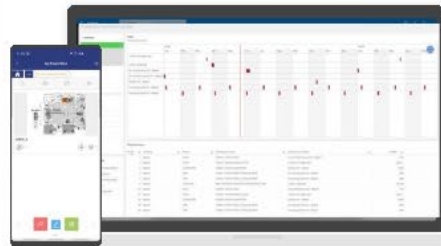


ENTERPRISE IWMS

Advanced work order & maintenance



Sensor rules and workflows



Inspections & maintenance plans

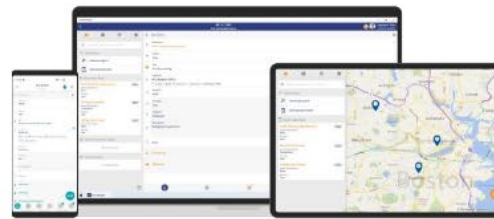


WORKASSISTANT

Assisting FM staff and field services



FM Work Assistant



Maintenance Work Assistant



SERVICE PERFORMANCE

Best practice compliance dashboards



Service performance monitor



Social distancing index



Real Estate manager



Facility manager and FM staff



Space planner and workplace manager



Office manager and reception desk



Maintenance manager and field technicians



BIM & assets manager



Building occupants and visitors



Tko ima sve informacije?

Arhitekt!



Real Estate manager



Facility manager and FM staff



Space planner and workplace manager



Office manager and reception desk



Maintenance manager and field technicians



BIM & assets manager



Building occupants and visitors



Jedini tko je uvijek prisutan?

Arhitekt!



Real Estate manager



Facility manager and FM staff



Space planner and workplace manager



Office manager and reception desk



Maintenance manager and field technicians



BIM & assets manager



Building occupants and visitors



Tko vodi glavnu riječ?

Netko drugi!

Zašto?

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Hvala!

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