



State of the Art in FM Higher Education, Research, and Practice in Switzerland

Institute of Facility Management IFM

State of the Art in FM Higher Education, Research, and Practice in Switzerland

23 September 2022, Asker / Oslo

Concept Symposium on Project Governance

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Prof. Dr.-Ing. Director IFM

Agenda

1. Introduction – education, research and practice at the IFM
2. Life Cycle Management - Facility management compatible construction planning and realisation
3. Technology – CAFM, Automation and IoT, BIM
4. Sustainability - Sustainable development of the built environment
5. Outlook – international cooperation



**“We are committed to sustainable development and the management of healthy living and working environments.”
IFM Vision**



**“We are committed to sustainable development and the management of healthy living and working environments.”
IFM Vision**

3 Locations

8 Schools

14`000 Students

3`500 Employees

**School of Life Sciences &
Facility Management (LSFM)**



Institute of Facility Management (IFM)

Education and Continuing Education at the IFM:

- Bachelor of Sciences in Facility Management (BSc in FM)
- Master of Sciences in Real Estate & Facility Management (MSc in REFM)
- International PhD Program in Facility Management (PhD)
- Continuing Education: wide range of courses from Certificate of Advanced Studies to Master of Advanced Studies (CAS, MAS)

What is Facility Management?

“Facility management (FM) is a profession that encompasses multiple disciplines to ensure functionality, comfort, safety and efficiency of the built environment by integrating people, place, process and technology” (IFMA 1998)

“organisational function which integrates people, place and process within the built environment with the purpose of improving the quality of life of people and the productivity of the core business.” (ISO 41011:2017)



Antje Junghans
Director of Institute

Education and research at the IFM



Cooperation with partners from Practice regional, national, international



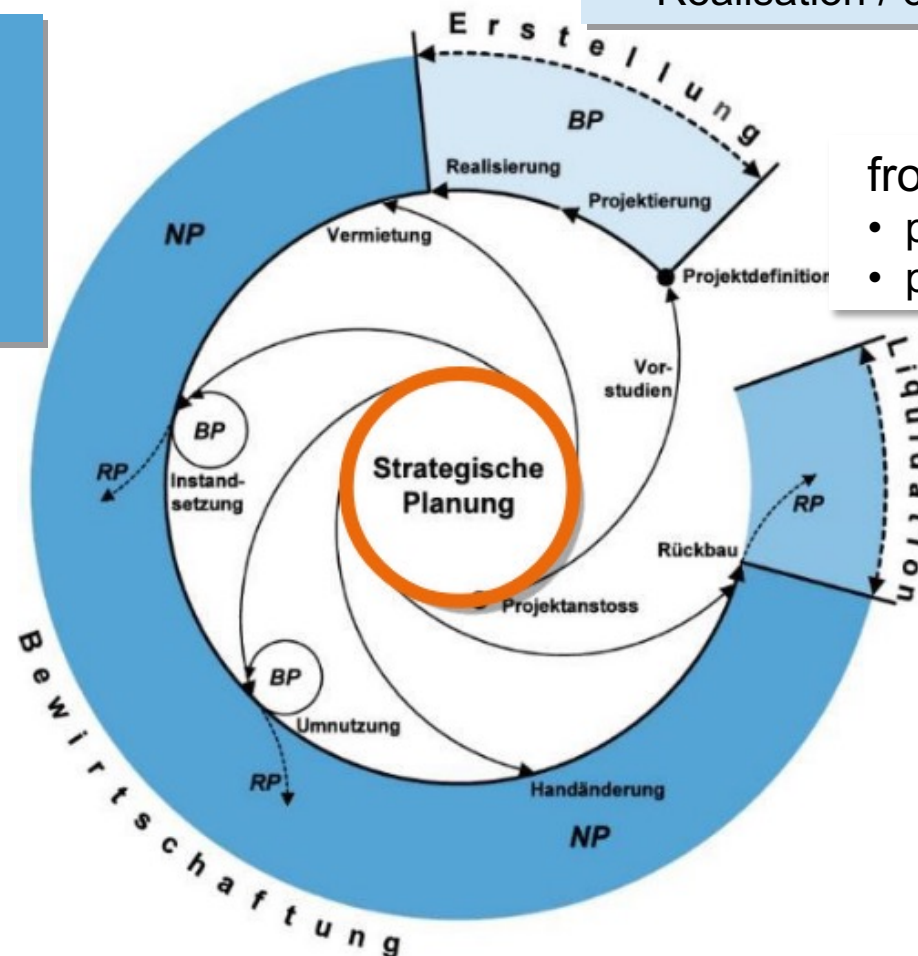
Life cycle model strategic planning within the building life cycle

Design & construction

- Project definition
- Project design
- Realisation / construction

Operation & utilisation

- Renting
- Maintenance
- Reuse
- Redesign
- deconstruction

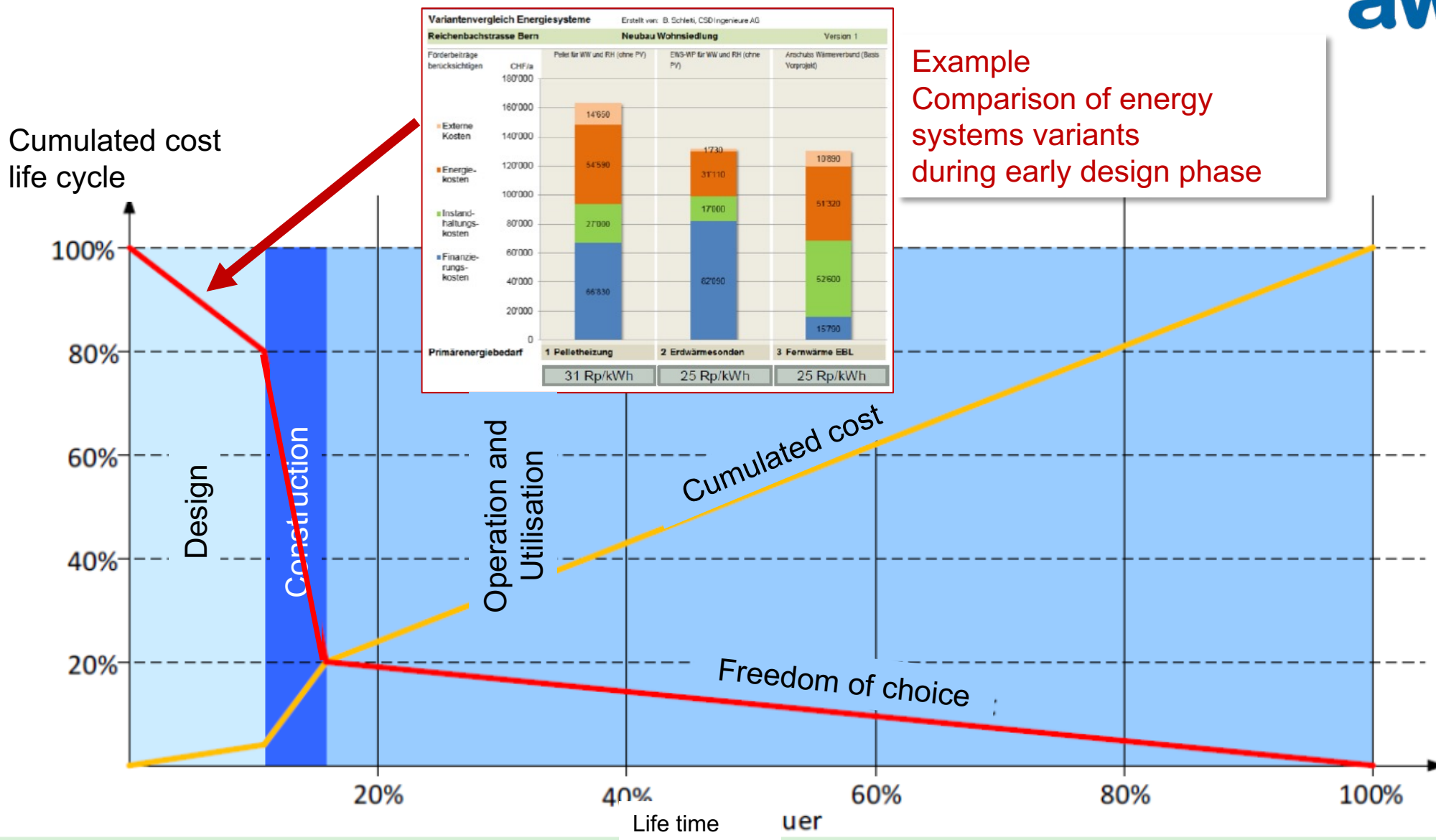


front end

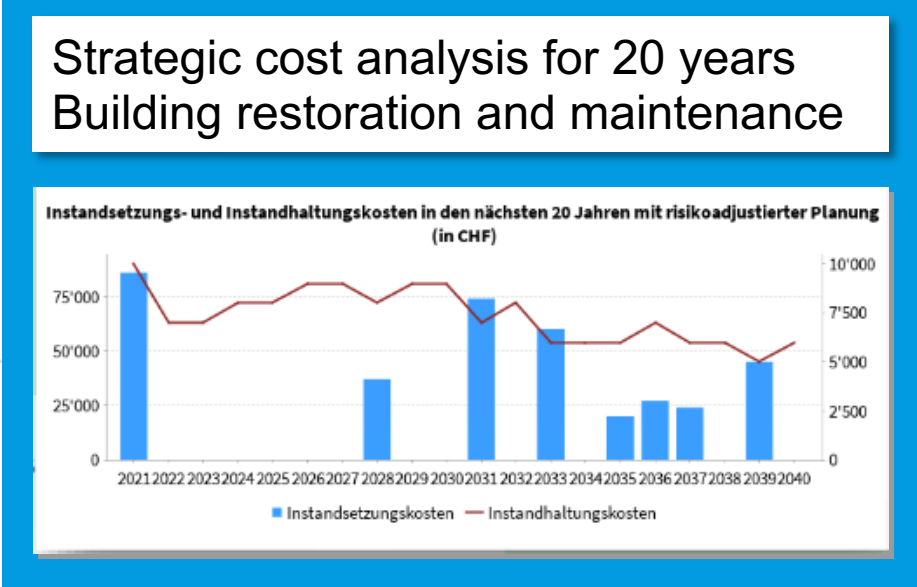
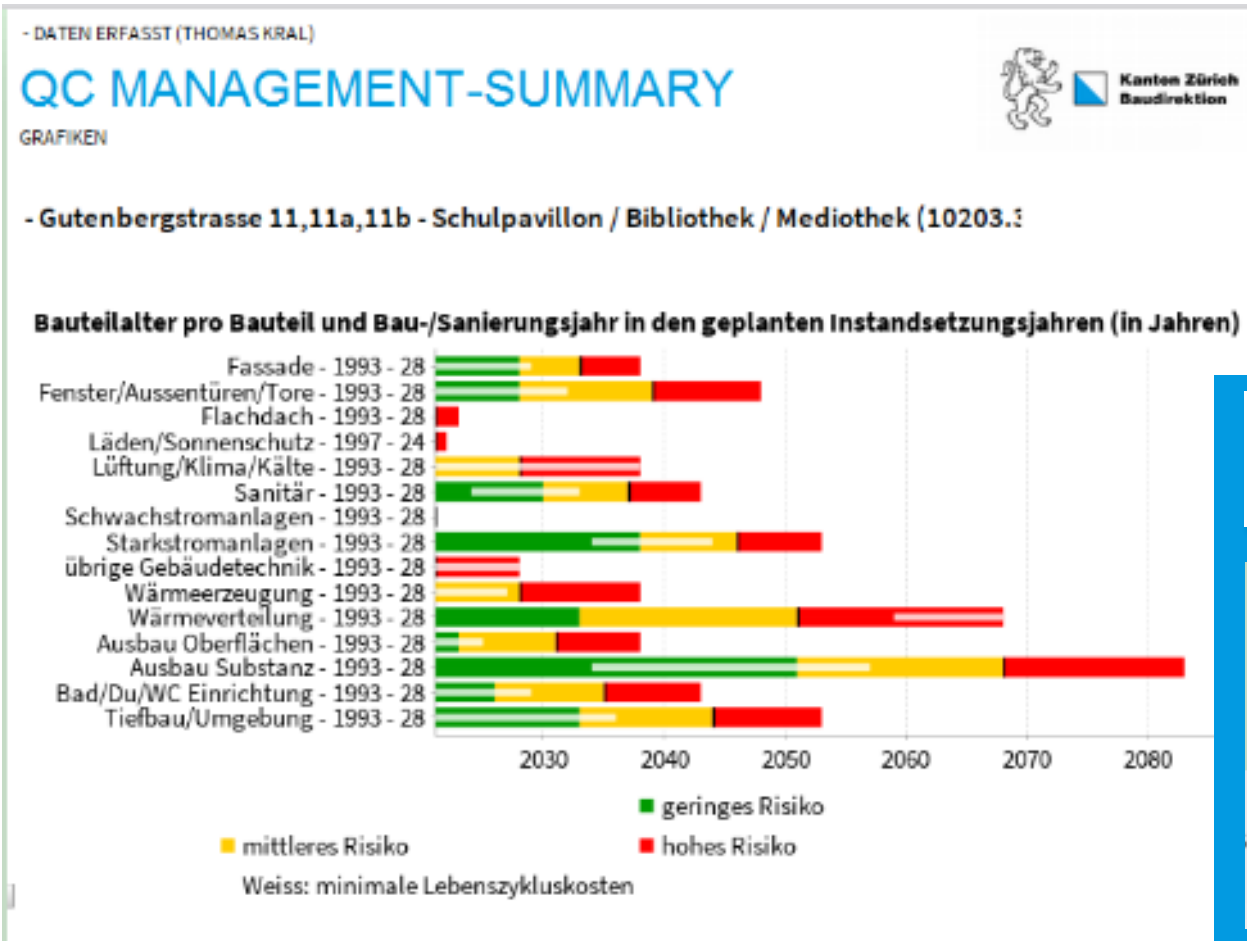
- project idea / initiation
- pre-studies

Liquidation

Life cycle cost optimisation



Building Condition Assessment Analysis and strategic planning

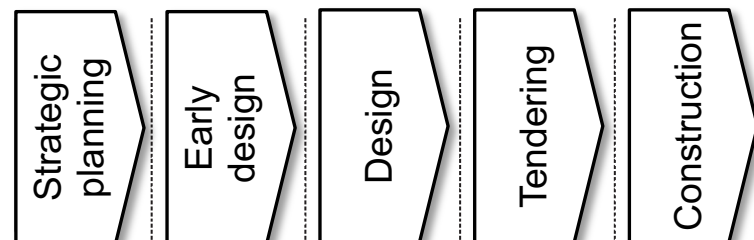


Facility management compatible construction planning and realisation

sia
Swiss society of engineers and architects



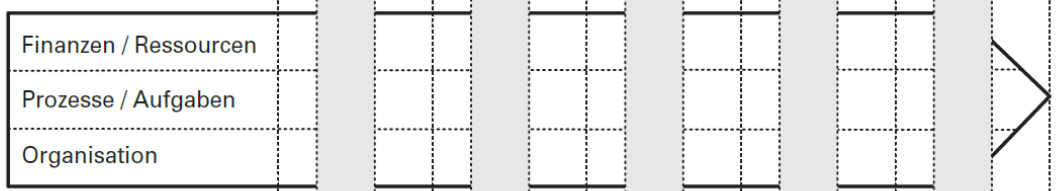
Phases according performance model



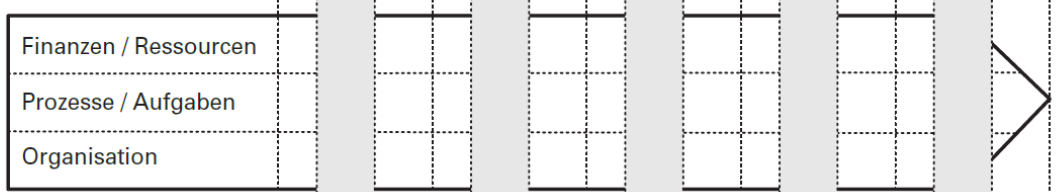
Quality assurance FM view



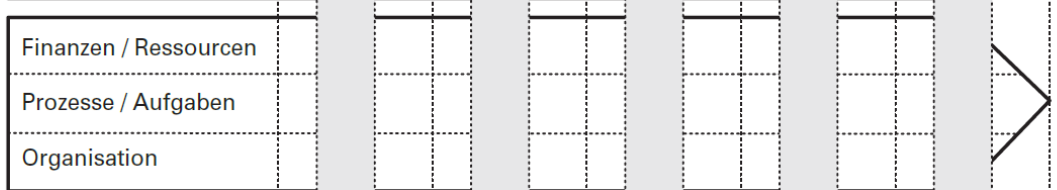
Owner / Investor view



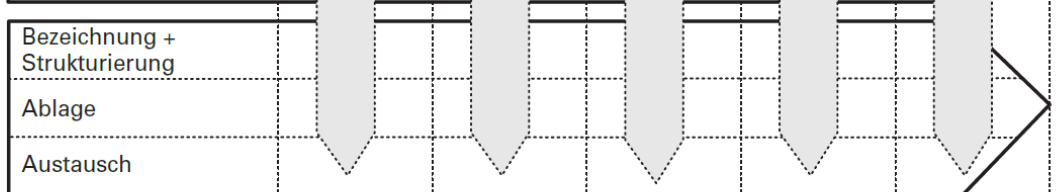
User / tenant view



Service provider view



Information- / data management



Facility management compatible construction planning and realisation

KBOB

Coordination Conference of the Building and Property Bodies of Public Builders

IPB Interessengemeinschaft privater professioneller Bauherren IPB

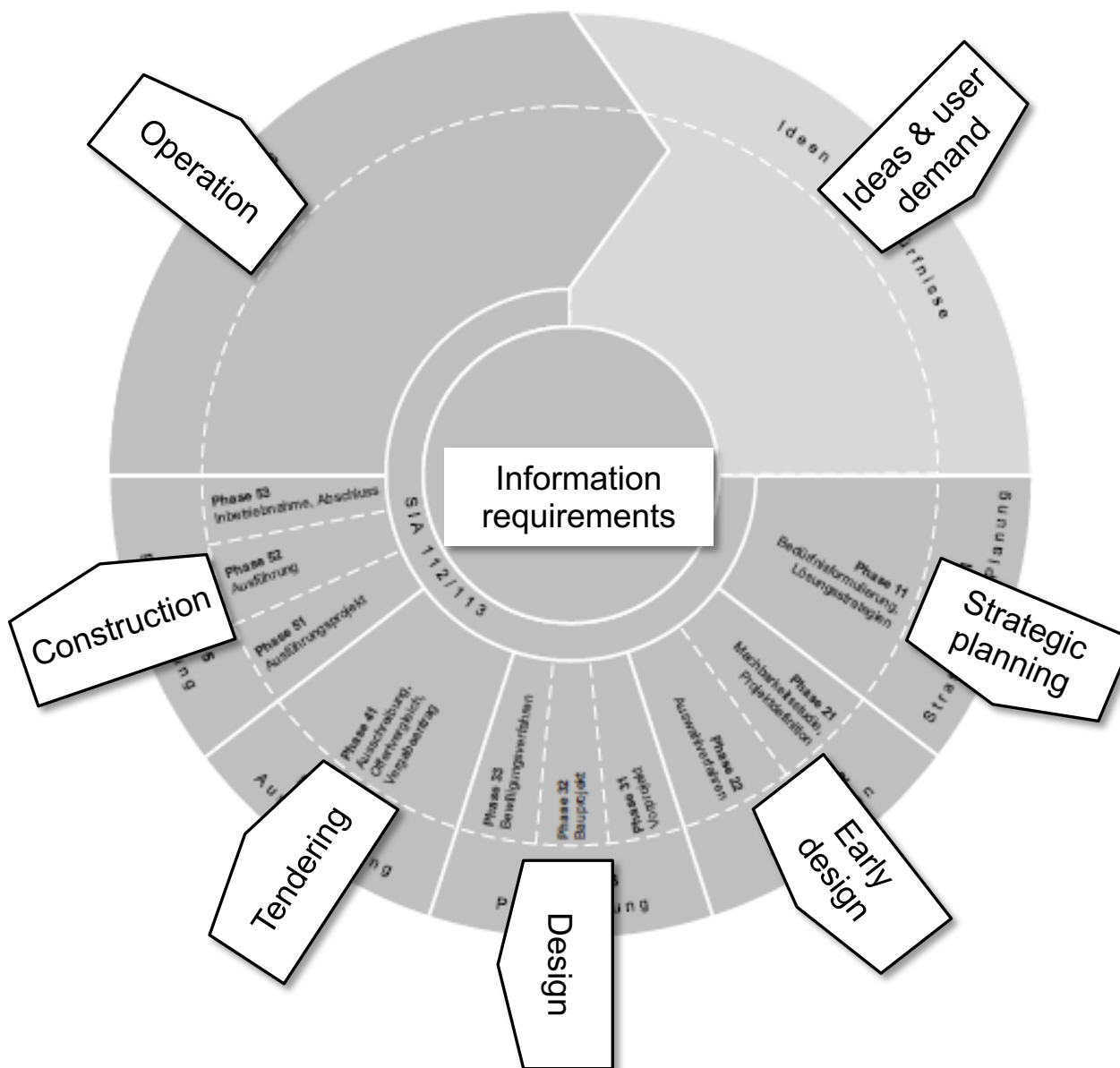
KBOB Koordinationskonferenz der Bau- und Liegenschaftsorgane der öffentlichen Bauherren
Conférence de coordination des services de la construction et des immeubles des maîtres d'ouvrage publics
Conferenza di coordinamento degli organi della costruzione e degli immobili dei committenti pubblici
Coordination Group for Construction and Property Services

Bauwerksdokumentation im Hochbau

Dokumentationsmodell BWD

In Zusammenarbeit mit:

Version 2016 deutsch



Strategic FM Framework



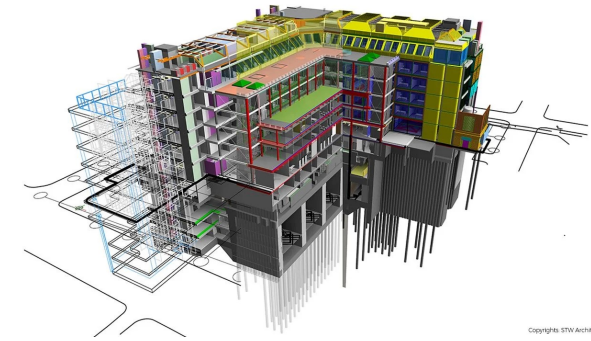
April 2018

Strategic FM Framework
RICS guidance note, Global
1st edition



State of the art FM technologies

- Computer Aided Facility Management
CAFM
- Building automation
Internet of Things
IoT
- Building Information
Modelling
BIM

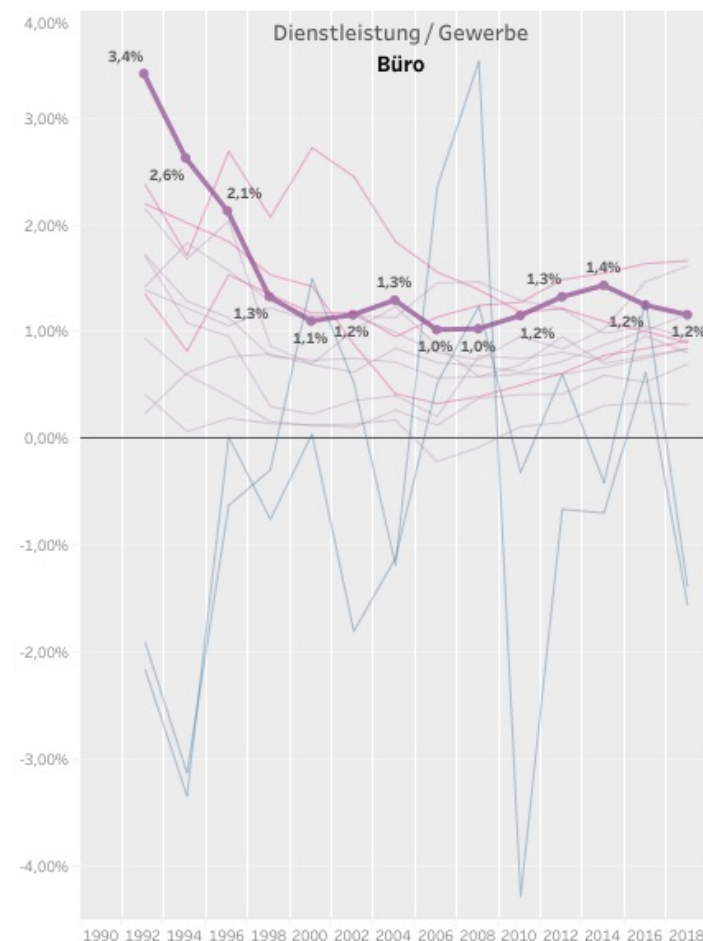
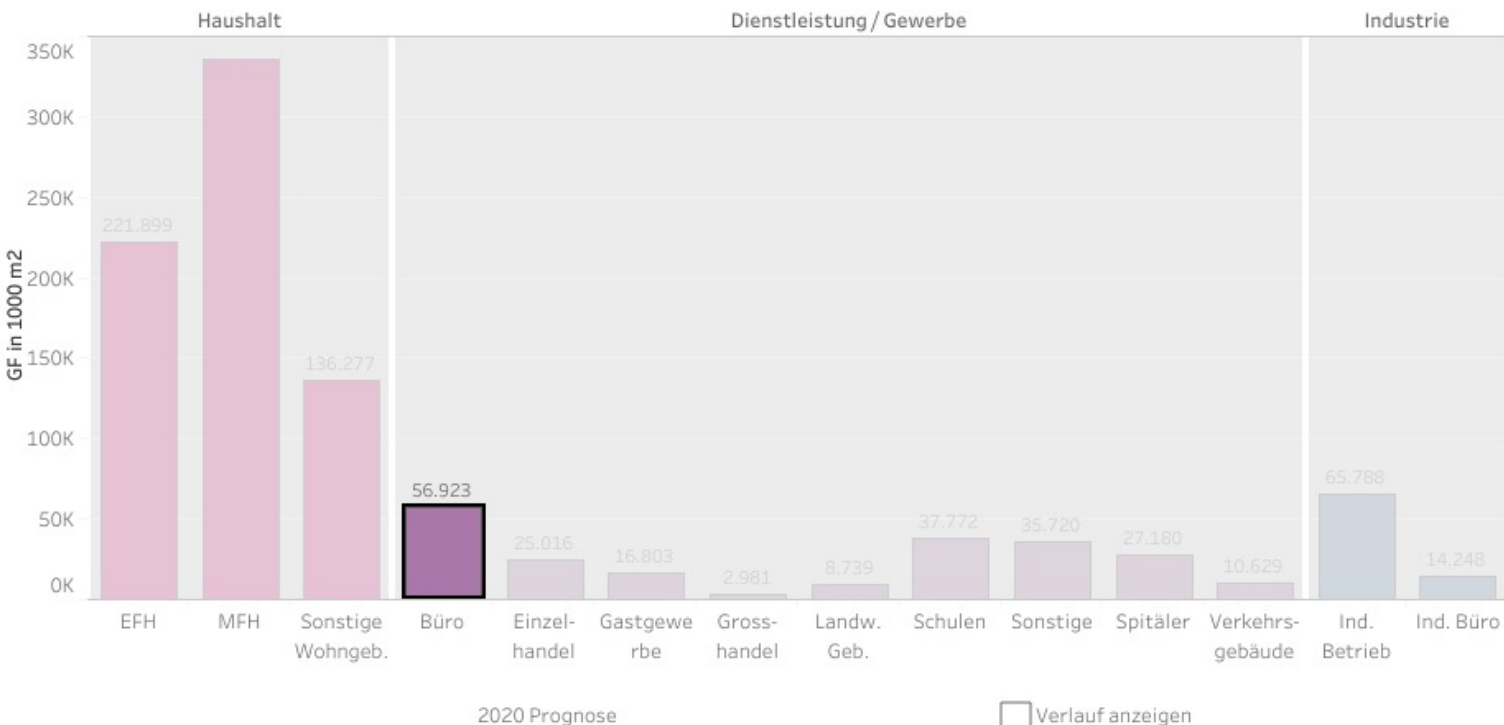


Switzerland: >1 billion square meter gross floor area

Floor space 1990 - 2020



Percentage growth rate per year



Floor space

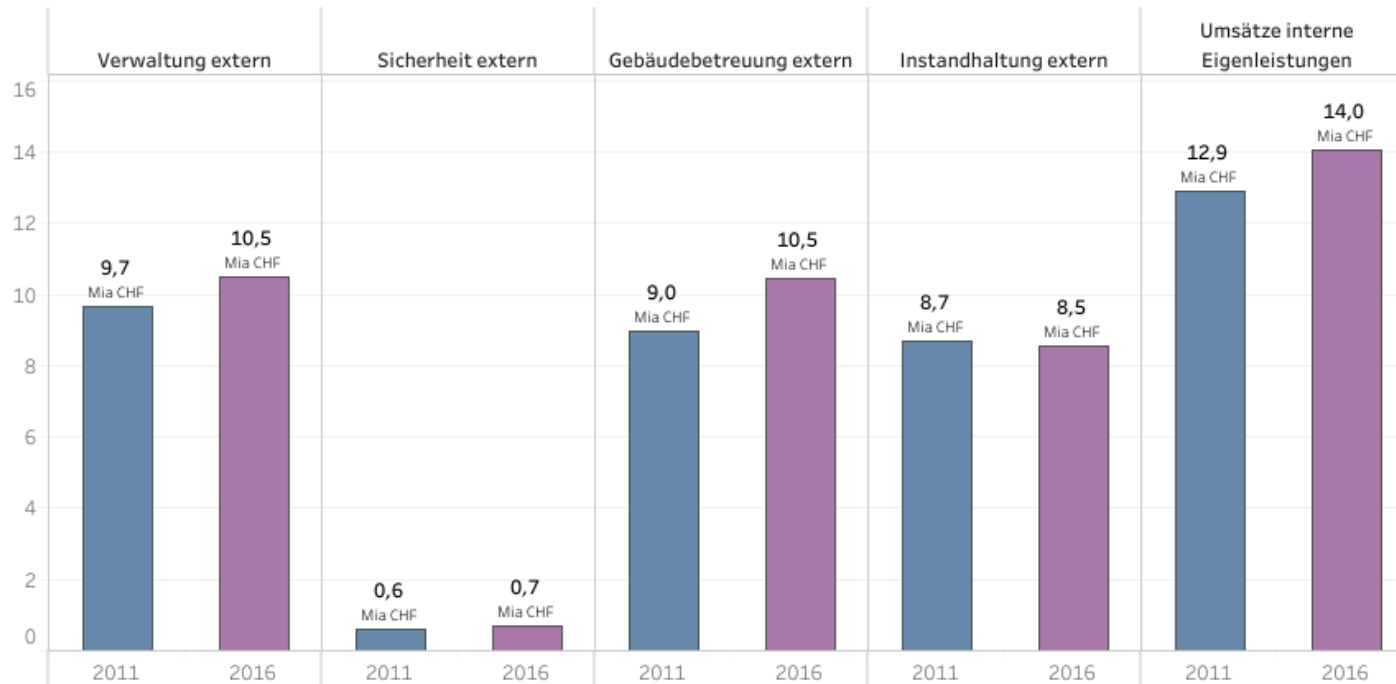
Switzerland's building stock provides more than one billion square metres of floor space (= area of all floors). This area corresponds to around 147,000 football pitches. Two out of three square metres are used for residential buildings. Again, two thirds of these are apartment buildings.

The energy reference area includes all floor areas that are heated or air-conditioned. In Switzerland, this applies to a total of around 770 million m² or an average of 73% of all floor areas.

<https://public.tableau.com/app/profile/digitaler.atlas.der.immobilienvirtschaft.schweiz/viz/DigitalerAtlasderImmobilienwirtschaftSchweiz/Intro> , 220915

Switzerland: FM Market share CHF 44.2 billion / NOK 468.5 billion

Market volume Facility management & services



Market volume facility management & services (billion CHF)

	2011	2016
Umsätze (Bruttoproduktionswert) der Branchen mit Immobilien als Kerngeschäft (ohne Bau)	19,3	21,7
Umsätze Instandhaltung	8,7	8,5
Summe Marktvolumen (extern)	28,0	30,2
Umsätze interne Eigenleistungen	12,9	14,0
Summe Marktvolumen (intern und extern)	40,9	44,2

Number of FTEs

	2011	2016
Anzahl VZÄ Bauwirtschaft (Instandhaltung Hochbau)	37.200	41.400
Anzahl VZÄ der externen Dienstleister effektiv (ohne Bau, Instandsetzung und Inst..)	102.500	117.700
Total effektive VZÄ externe Dienstleister	139.700	159.100
Kalkulierte Anzahl VZÄ Inhouse	60.000	62.500
Total Anzahl immobilienbezogener Mitarbeiter	199.700	221.600

Facility management & services market

Property management market

The turnover of the sectors with real estate as their core business (real estate and housing, security services, building management and gardening and landscaping) amounts to CHF 21.7 billion. CHF.

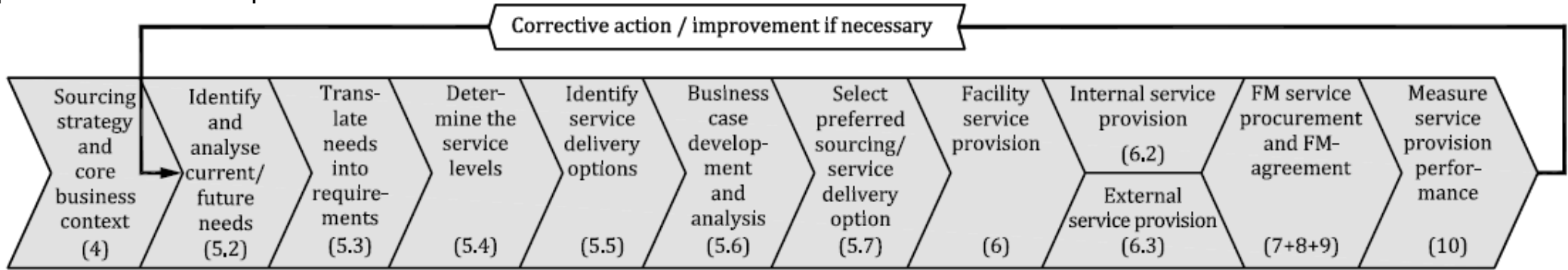
The construction expenditures of the public and private sectors for the maintenance of properties amount to CHF 11.5 billion. CHF. Maintenance includes the two maintenance and repair.

Repairs are usually construction projects and are not counted as part of the management market. Maintenance services, on the other hand, are part of the management volume. They add up to CHF 8.5 billion. CHF. In addition the services of internal, real estate-related employees amounting to around 14 billion. CHF. The total market volume for facility management thus amounts to CHF 44.2 billion.

<https://public.tableau.com/app/profile/digitaler.atlas.der.immobilienvirtschaft.schweiz/viz/DigitalerAtlasderImmobilienwirtschaftSchweiz/Intro> , 220915

FM Guidance on strategic sourcing ... ISO 41012

Sourcing: practice which identifies, evaluates and engages internal and external service providers to deliver a service or products to meet a specification



Understand business context and strategies

Align service strategies to business strategy including environmental, social responsibilities, legal, economic, and political issues

Identify current and future facility needs and expectations of the demand organization

Determine what needs to be delivered, where and how often
Define strategic goals to be achieved (cost, quality, etc)

Specify criteria and parameters
Identify expected measurable output (quality levels)
Define performance indicators and targets for each service

Market research
Determine cost and risk baseline

Establish business case
Financial issues
Define investment strategy
Estimate costs
Pricing strategy
Risk analysis
Organization needs
Project strategy

Select and recommend preferred sourcing alternative

Implement recommendation

- a) Internal (define required competence level, allocate resources, organize)
- b) external (negotiate, sign agreement)

Develop service level agreement (SLA)

Develop overall FM service provision agreements

Incorporate required contract clauses

Document performance criteria

Execute FM agreement

Follow-up, monitor and verify service provider deliveries

Data collection and report on facility services to buyer organization

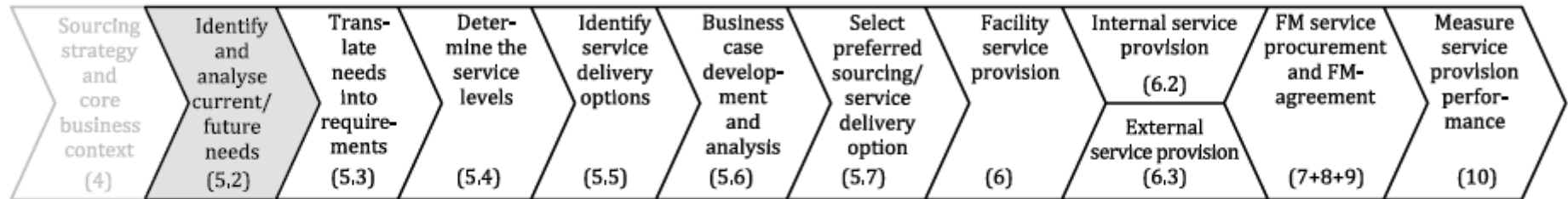
Compare delivery to service requirements

Identify and implement corrective actions

Figure 1 — Sourcing process overview

5.2 Identify and analyse current and future needs and expectations

This step of the sourcing process is shown in [Figure 2](#).



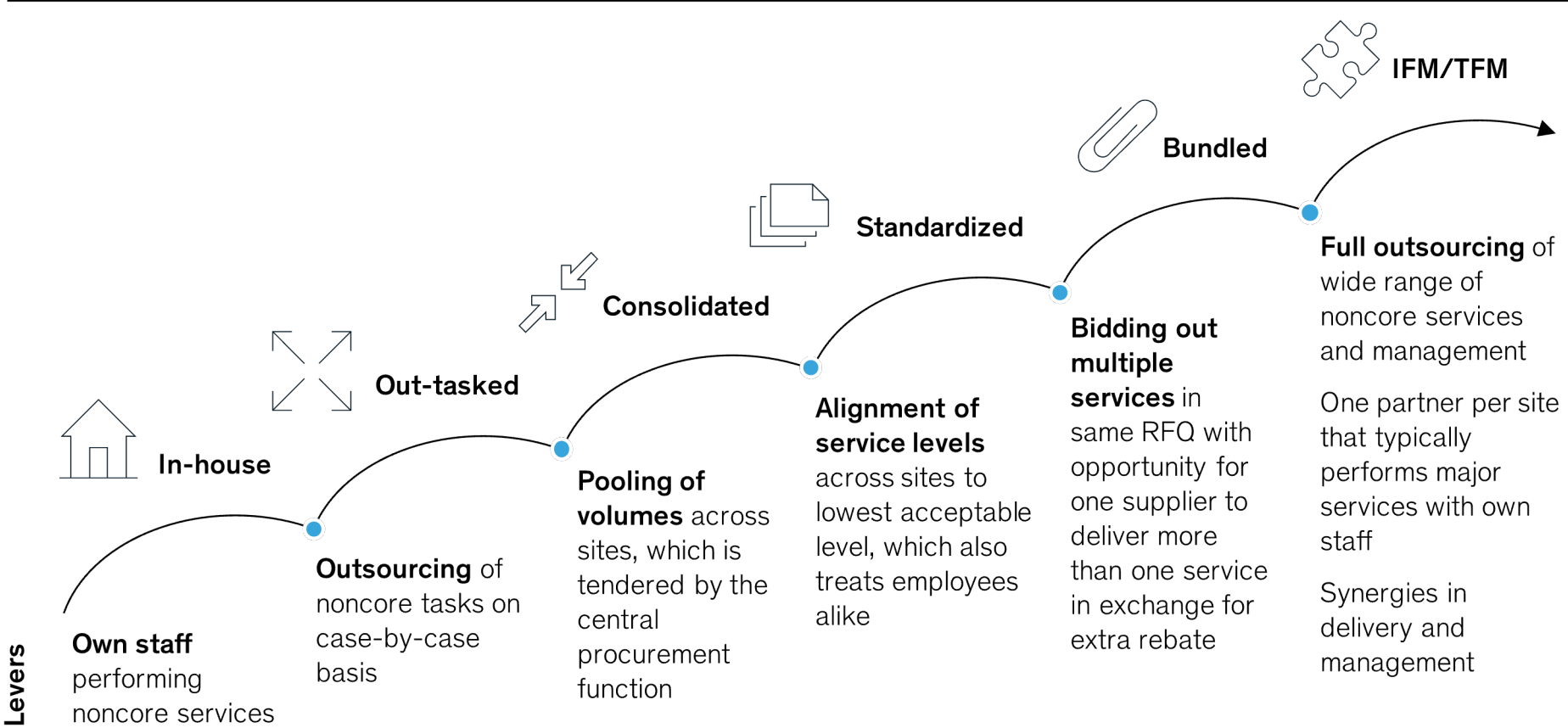
The first step in the identification of needs is to understand the current conditions and establish a baseline. It is imperative to have a good understanding of

1. the current organizational structure and
2. capabilities,
3. service delivery models,
4. existing service contracts, and
5. current performance measures.



Typical evolution of FM approach over time

Savings



International cooperation

- **improve quality, productivity and financial performance**
- **enhance sustainability and reduce negative environmental impact**
- **develop functional and motivating work environments**
- **maintain regulatory compliance and provide safe workplaces**
- **optimize life cycle performance and costs**
- **improve resilience and relevance**
- **project an organisation`s identity and image more successfully**

(ISO 41011:2017)



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Thank you for your attention!

