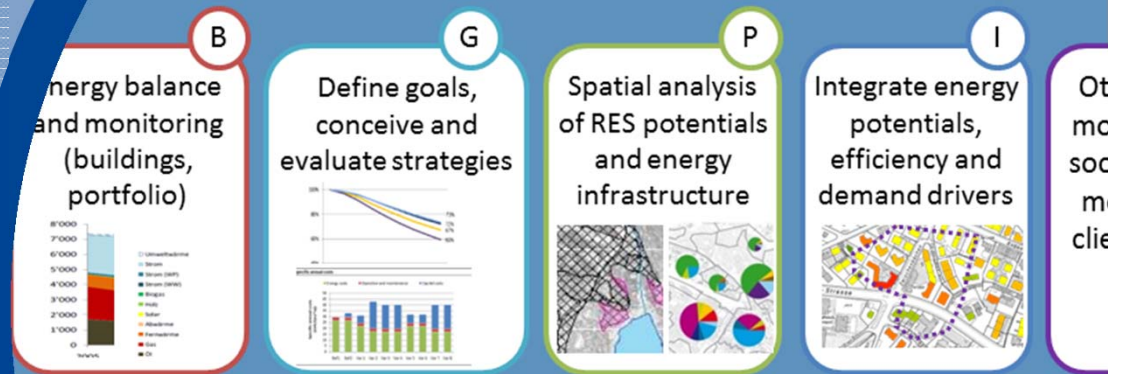
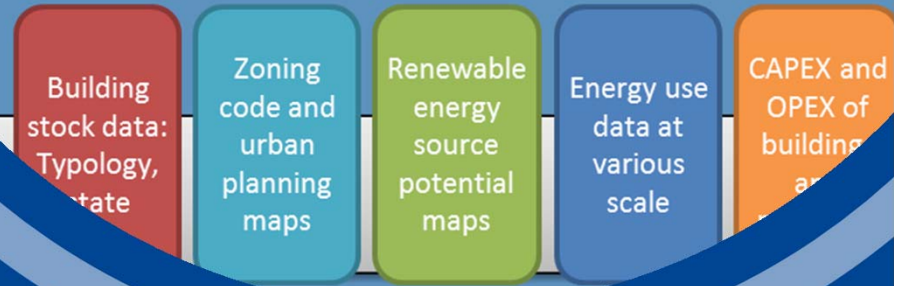


manage and analyse data
represent and visualise



Calculation and data base engine

- Process, integrate, impute and synthesize data
- Simulate decision making, model energy and emissions, calculate
- Import and export interfaces



Portfolio BSM for the Future of Hamilton

TEP Energy, Switzerland
Chalmers University, Sweden
University of Toronto, Canada

Background: Portfolio and Building Stock Challenge

1. Social housing towers in Hamilton need retrofits
2. City of Hamilton has climate goals: - 80%

Challenge at various levels: technical, economic, financial, social, urban planning

- **Need of a tool to conceive, valuate, plan, implement and monitor**

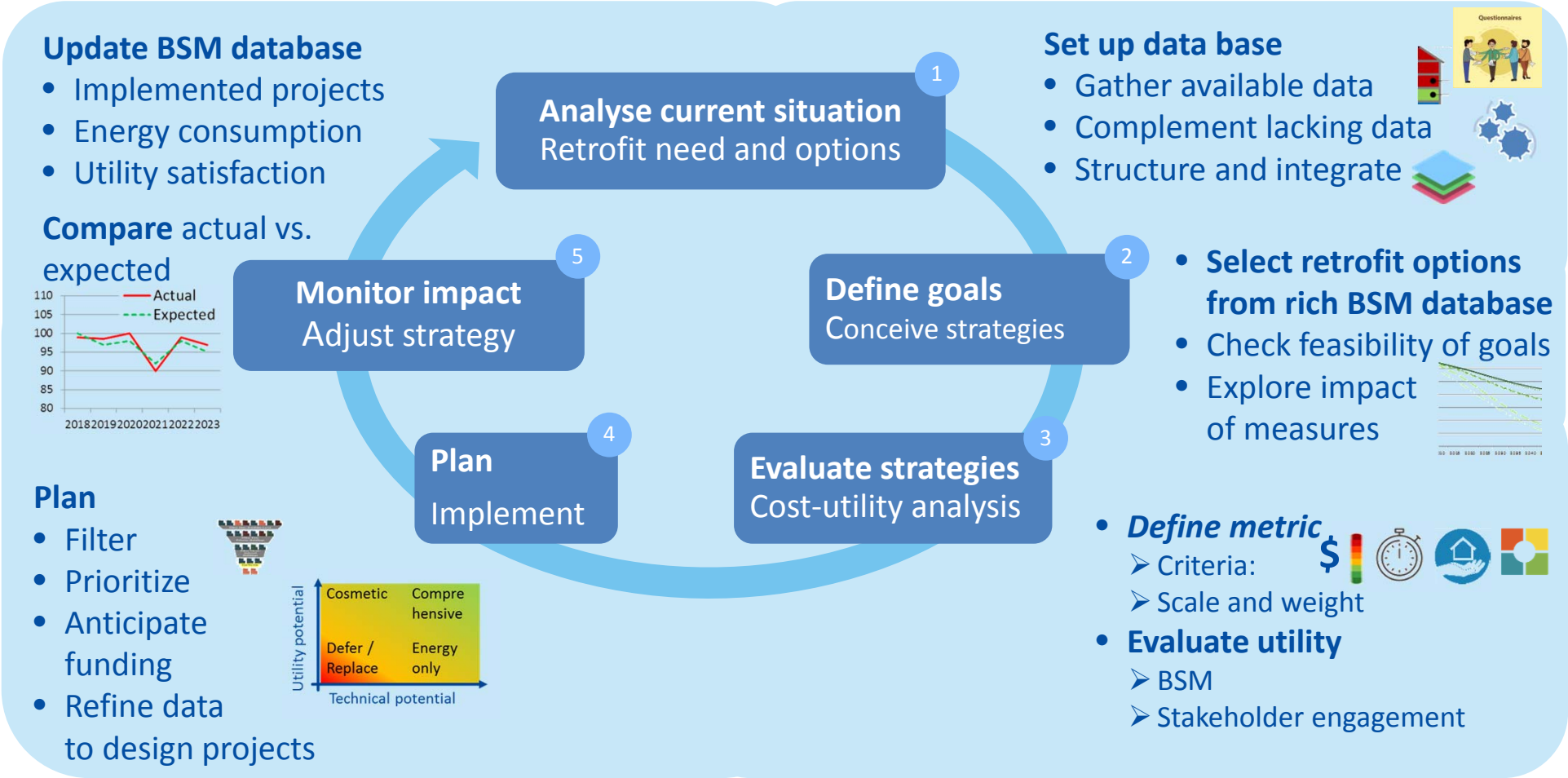


2018

2050



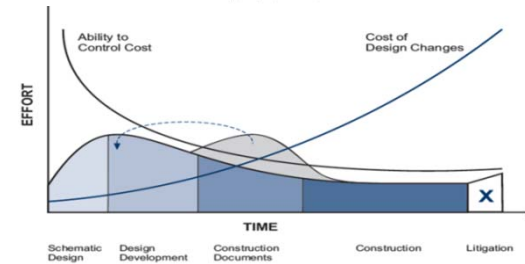
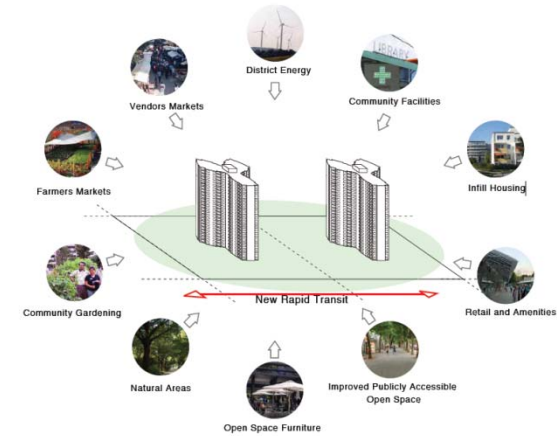
Steer the retrofit process with the Portfolio BSM



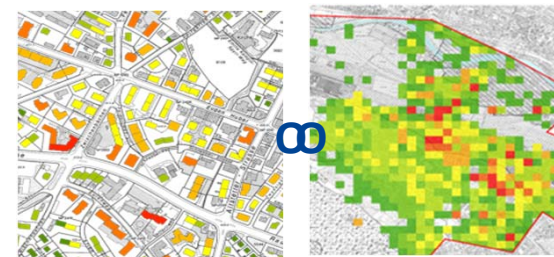
Impacts thanks to the BSM

1. Do **informed** and **co-created** decisions
2. **Increase utility** for owners and tenants
3. Achieve **optimal** impact from constraint investment budgets

- **Benchmark** ∞ Canadian Portfolio Manager
- Find **common solutions** to tap renewables
- Portfolio retrofit ∞ **urban energy planning**
=> Hamilton Community Energy Plan (CEP), MyHeat Hamilton



ENERGY STAR Portfolio Manager for specific building types
 Natural Resources Canada offers a Canadian-based 1-100 ENERGY STAR score for the building types shown below. Buildings of these types

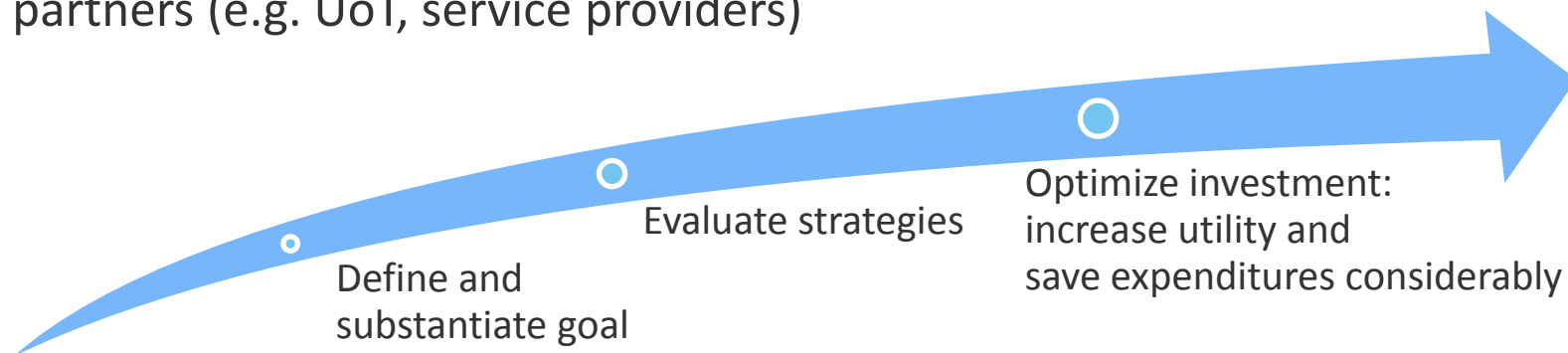
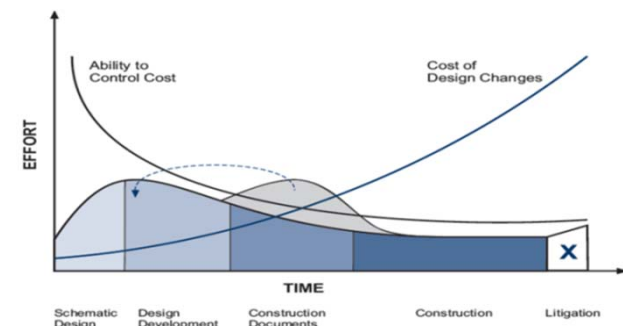


Source: Tower Renewal Guidelines Toronto, NRCAN, TEP Energy



Business case of using the Portfolio BSM

1. Strategic, informed and co-created decision making: Saves money and yields utility from investments
2. Building portfolio (investment) management is generic
3. Adjustment to local circumstances and implementation: through Canadian partners (e.g. UoT, service providers)



Integration roadmap: Next steps

- The (expert version) of the BSM is available and used in many projects
- The Portfolio BSM still needs some additions (e.g. online interface)
- Innovative pilot clients, e.g. Hamilton, take advantage of various benefits

**We provide
tools and advice**



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Available now

Studies with expert BSM version: TEP Energy, Chalmers University, service provider(s) who perform(s) studies and provide advice

**CREATE proposal
to Climate KIC**

Web service tool to be used by yourself or by your service provider(s)



**Innovative
pilot client**

**Available on
request**

In-house (stand-alone) tool delivered to you and to be used by yourself

