Agentic AI and the Self-Managing Enterprise.

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sdcourses.com and pathfwd.io

Please share these slides: sdl.re/AIshowITS

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Agentic AI

… autonomous systems that act as intelligent agents, perceiving the environment and making decisions, to achieve goals with minimal human oversight

Autonomy: Operates independently, taking actions.

Goal-Oriented: Focuses on achieving specific, high-level objectives.

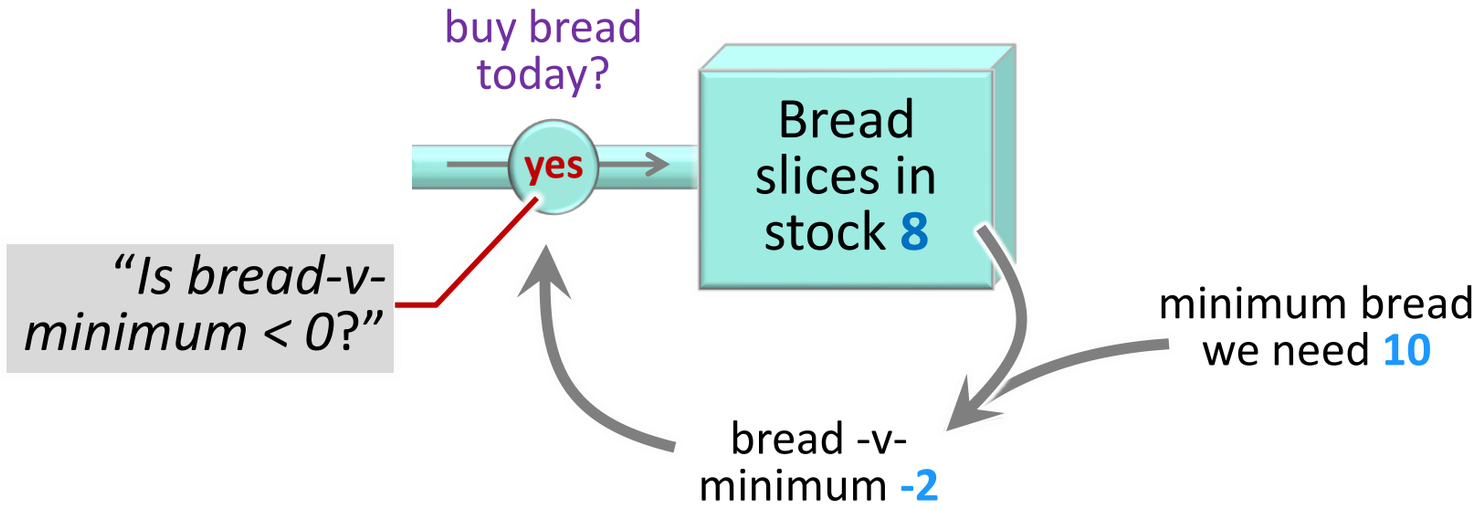
Reasoning & Planning: Uses algorithms, iterative logic, self-correction to make choices

"Policies"

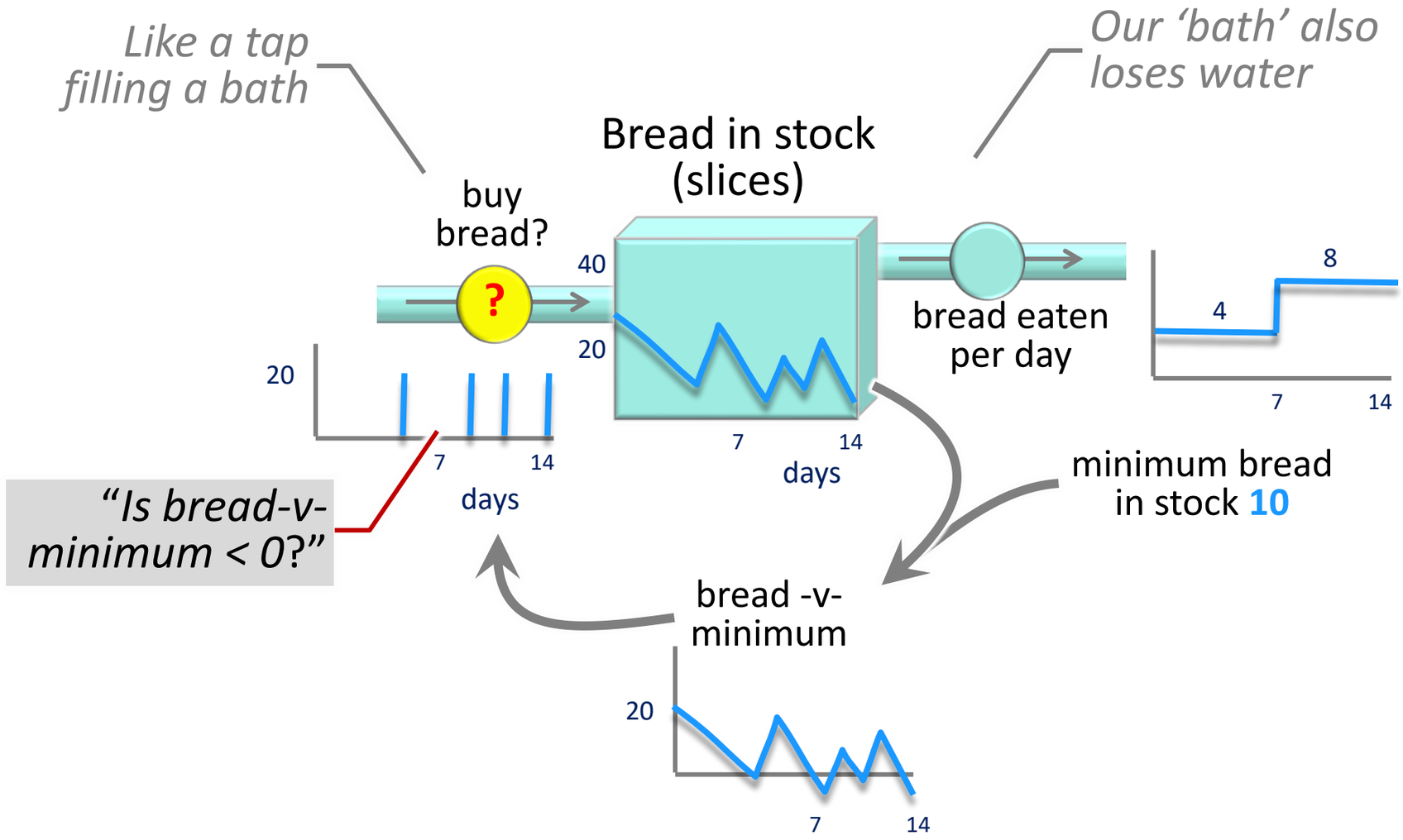
Tools & Interaction: Utilizes APIs, databases, and software tools to perform actions.

Modular Architecture: Composed of specialized agents that can collaborate to solve intricate problems. (*The key challenge*)

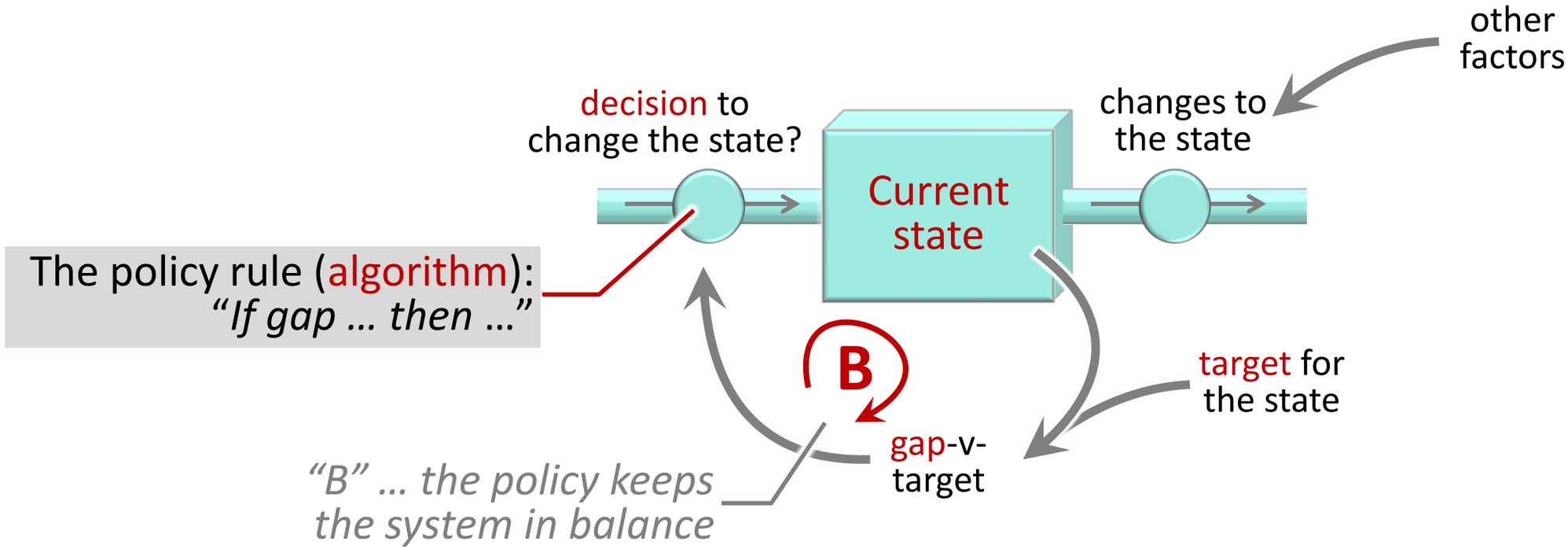
We use “policies” all the time (*rules to make decisions*)



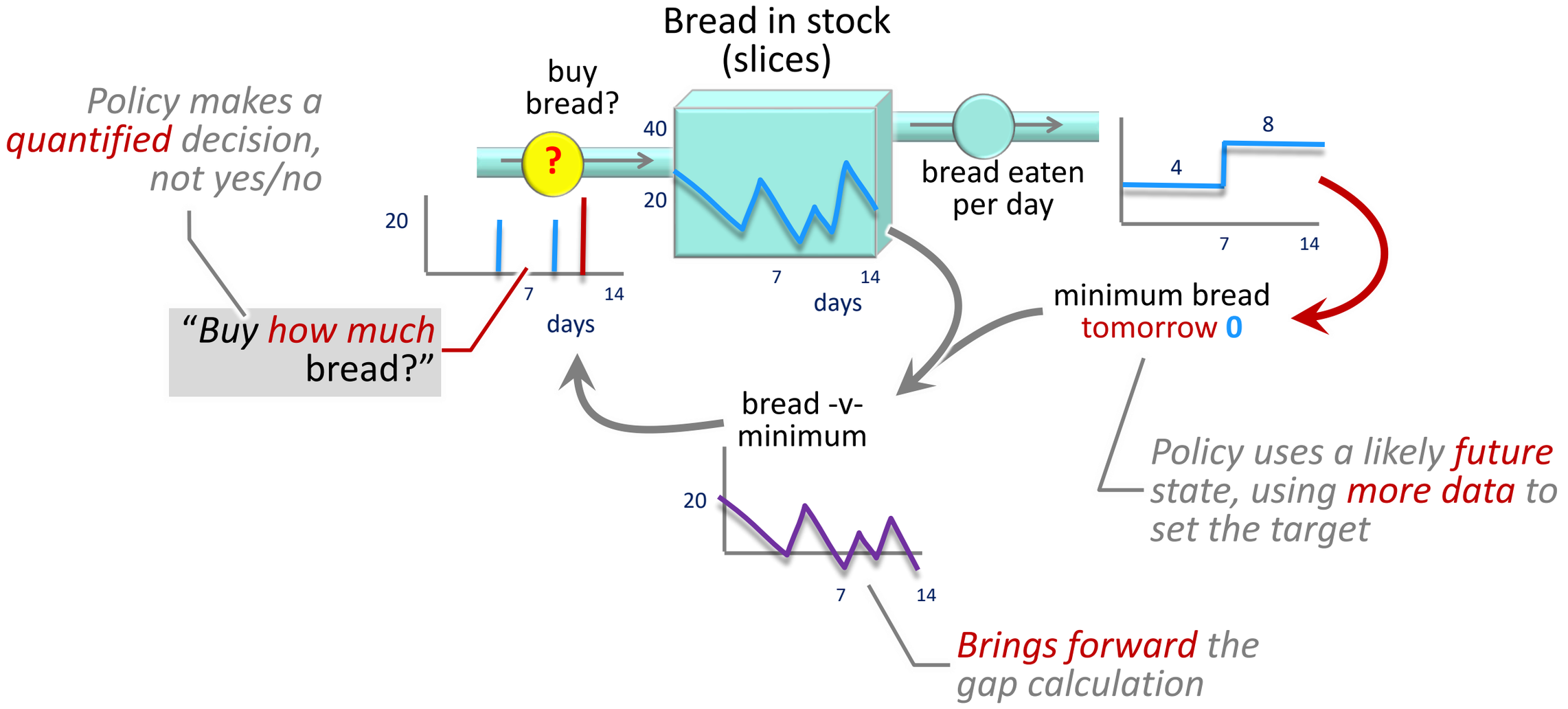
The policy ***continually*** changes the decision …



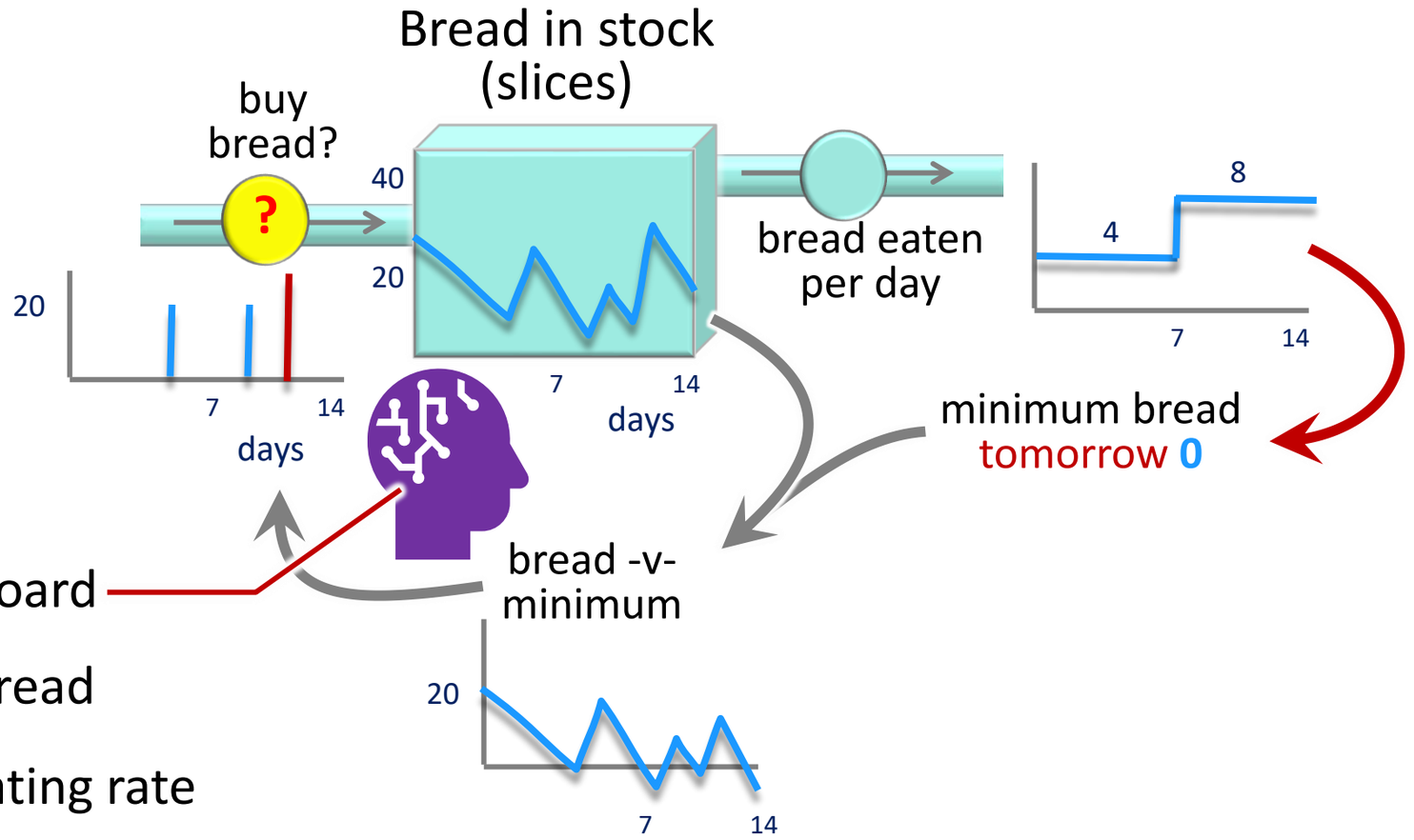
Elements and structure of a “policy” (*a rule to make decisions*)



A more sophisticated bread-buying policy …



Our AI agent takes over the bread-buying decision ***and*** action …



Our **AI agent** in the cupboard

… *counts* the stock of bread

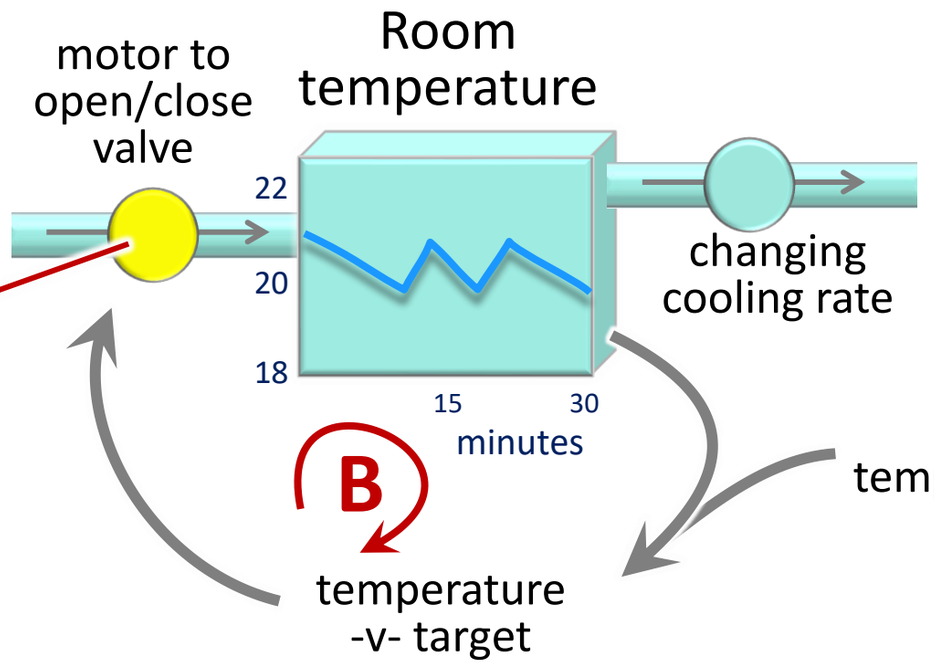
… and the current eating rate

… *forecasts* tomorrow's stock

… *orders* enough for tomorrow's eating rate

We automate policies … a room thermostat

Checks the current temperature -v- target and automatically opens or closes the valve



Process-manufacturing plants have hundreds of such mechanisms to control levels, temperatures, consistencies, chemical composition …

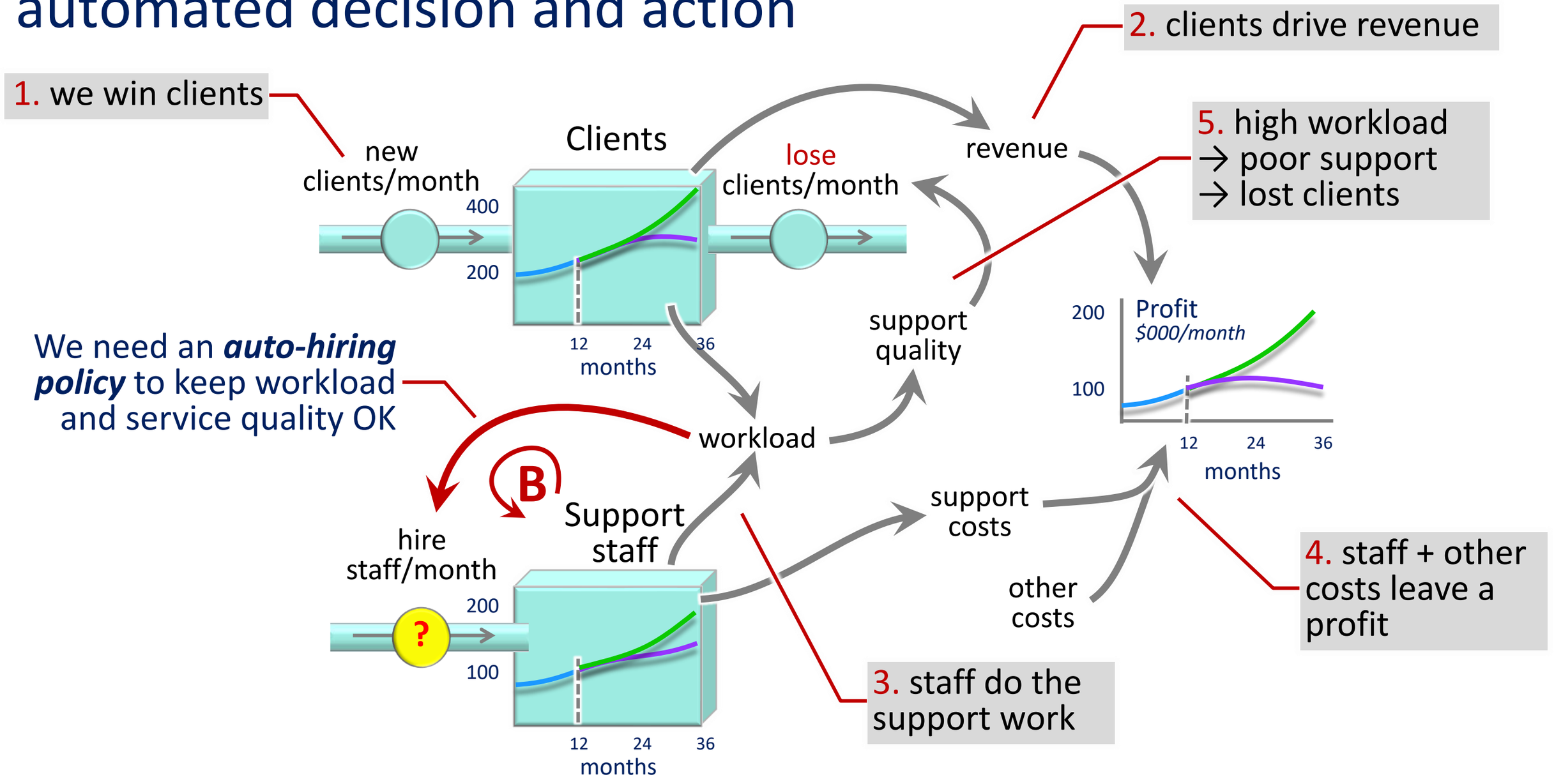
Automated decisions and actions in business management, too …

Kanban inventory and ordering systems

Airline/theatre yield-management price setting

"Intelligent agents" make these decisions, ***and*** enact them

A simple IT-support business needs an automated decision and action



System Dynamics

… engineering control theory applied to social, economic, environmental and other systems

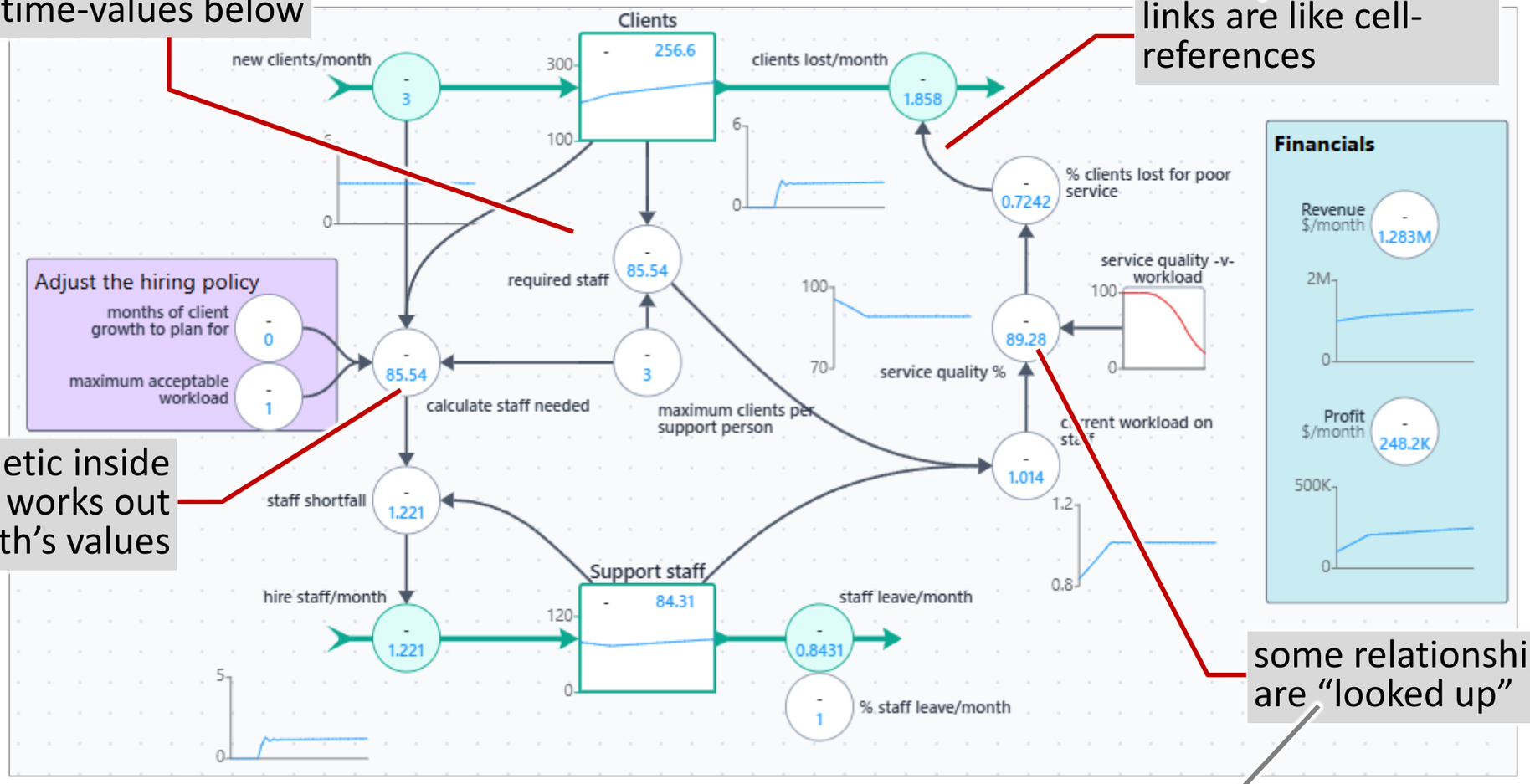
… has told us how to design policies to manage systems for 60+ years! (*The policy-control loop is central to engineering control of physical systems*)

The model … Get the model: sdl.re/AI*model*ITS

each element is like a spreadsheet column with the name in the top cell and 36 time-values below

*"If I know A, I can **calculate** B"*

links are like cell-references



simple arithmetic inside every item works out each month's values

some relationships are "looked up"

*"If I know A, I can **estimate** B"*

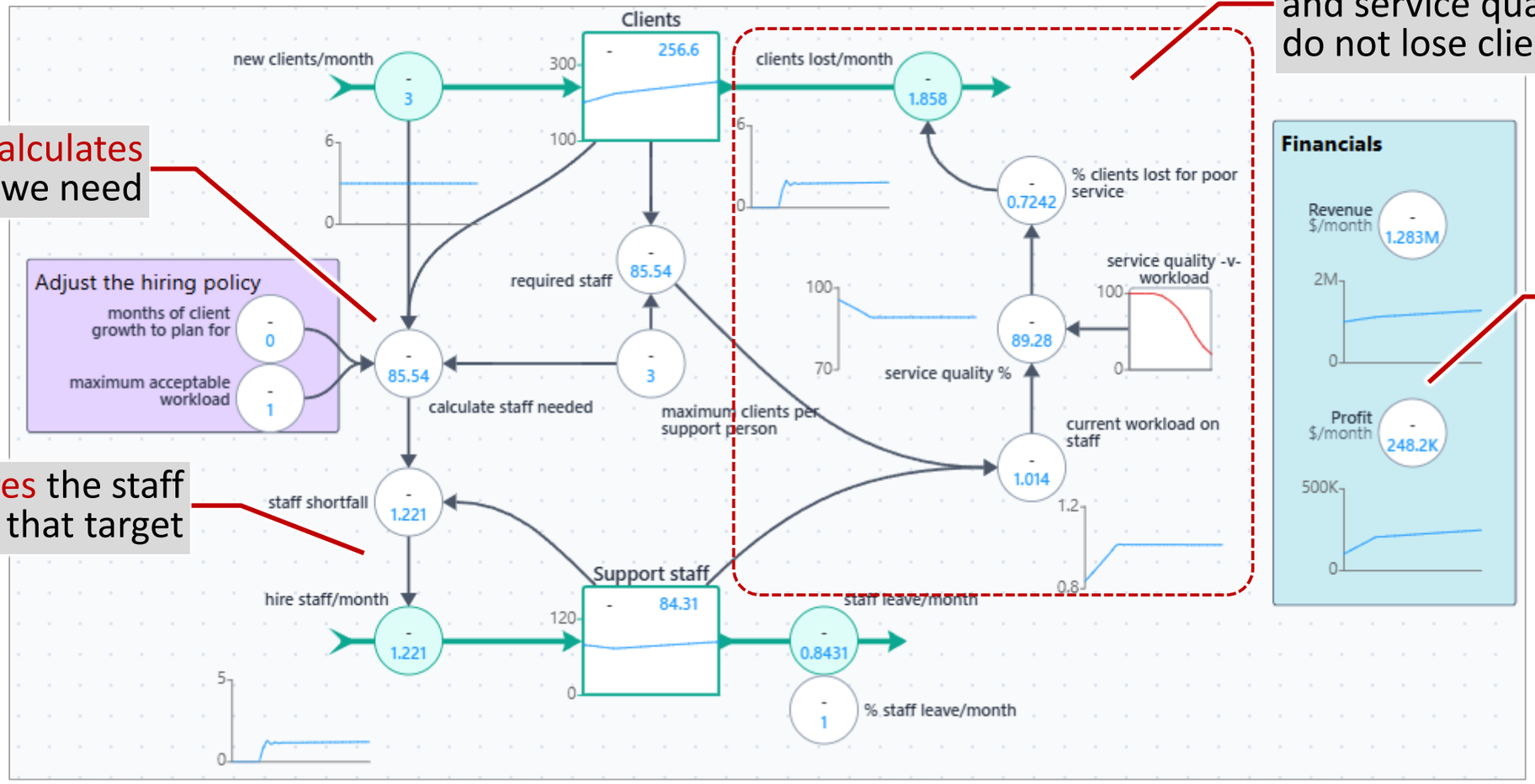
The simple IT support firm with auto-hiring … over 36 months

will this policy keep workload and service quality OK, so we do not lose clients?

The model calculates the target staff we need

… and how will revenue and profit grow?

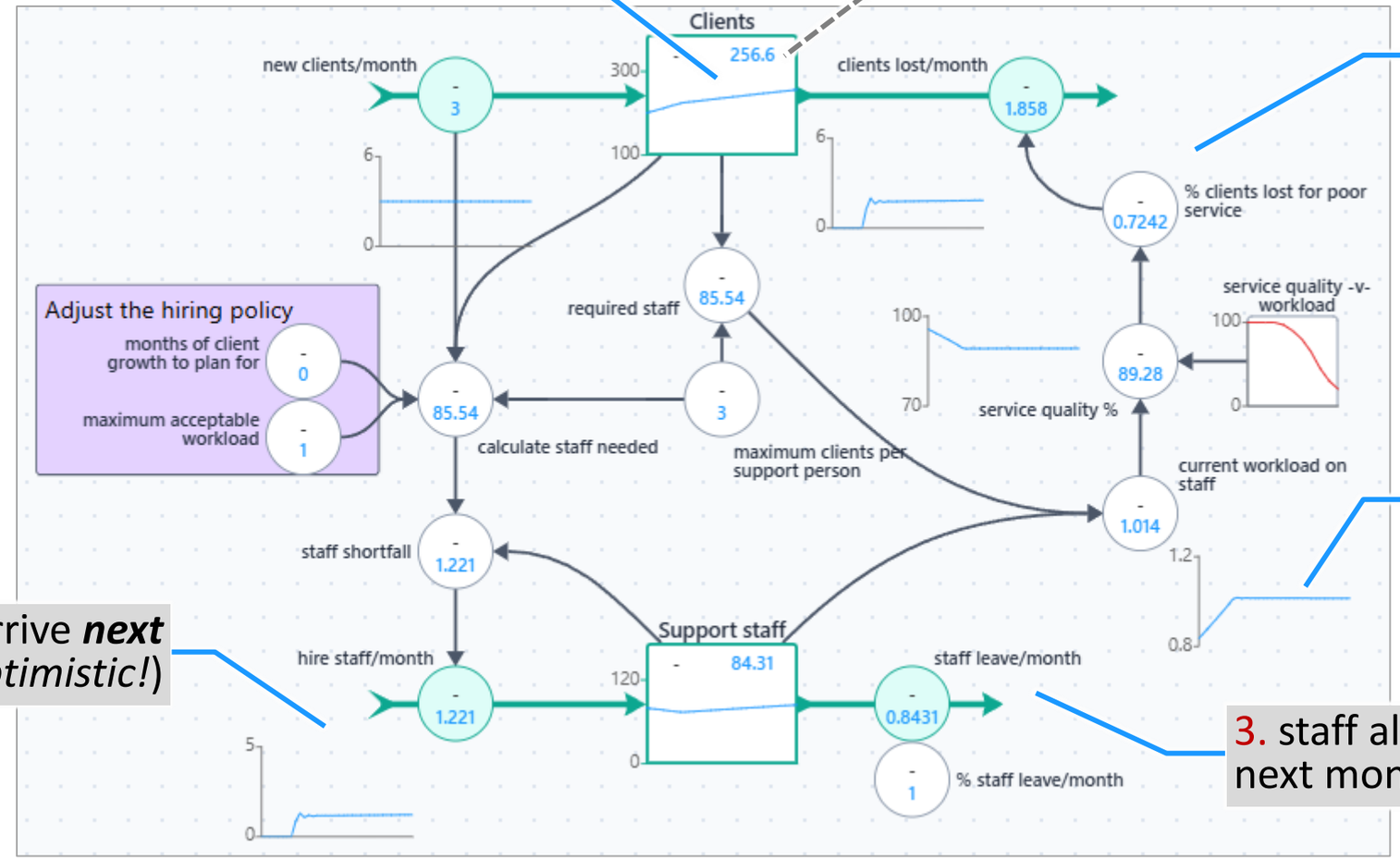
… then auto-hires the staff shortfall -v- that target



Why this ***reactive*** policy does not work

2. ... but by next month we ***will*** have still more clients

200 clients + 3/month ***should*** get us >300 clients



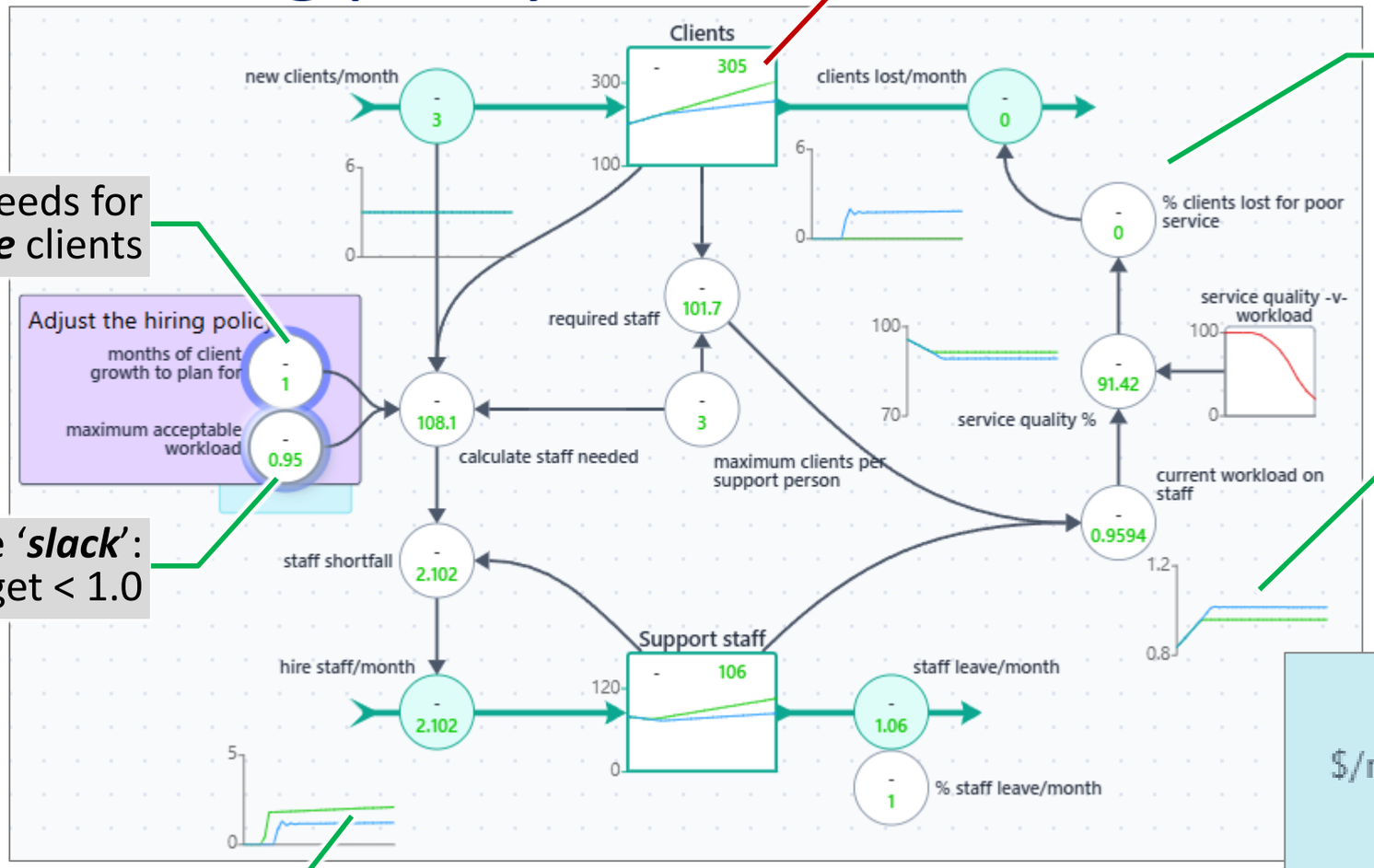
5. so service quality <90% loses clients

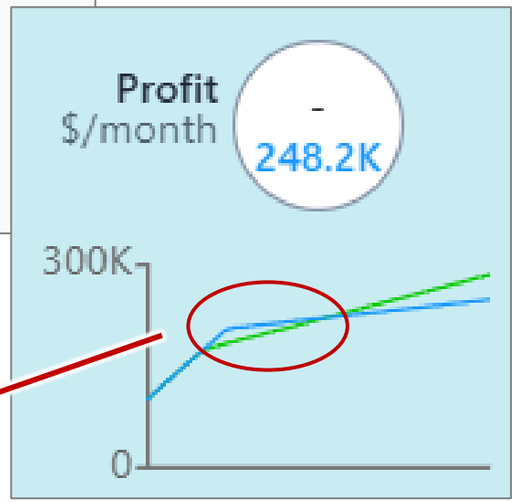
4. so workload is always ***just*** > 1.0

1. staff arrive ***next*** month (*optimistic!*)

3. staff also leave, raising next month's staff shortfall

A ***smarter*** hiring policy …





6. We get >300 clients

5. so service quality >90% loses ***no*** clients

2. anticipate needs for ***future*** clients

4. we keep workload below 1.0

1. aim for some '***slack***': workload target < 1.0

3. we hire more people, earlier

BUT the CFO was not happy. Higher staff costs hit profits

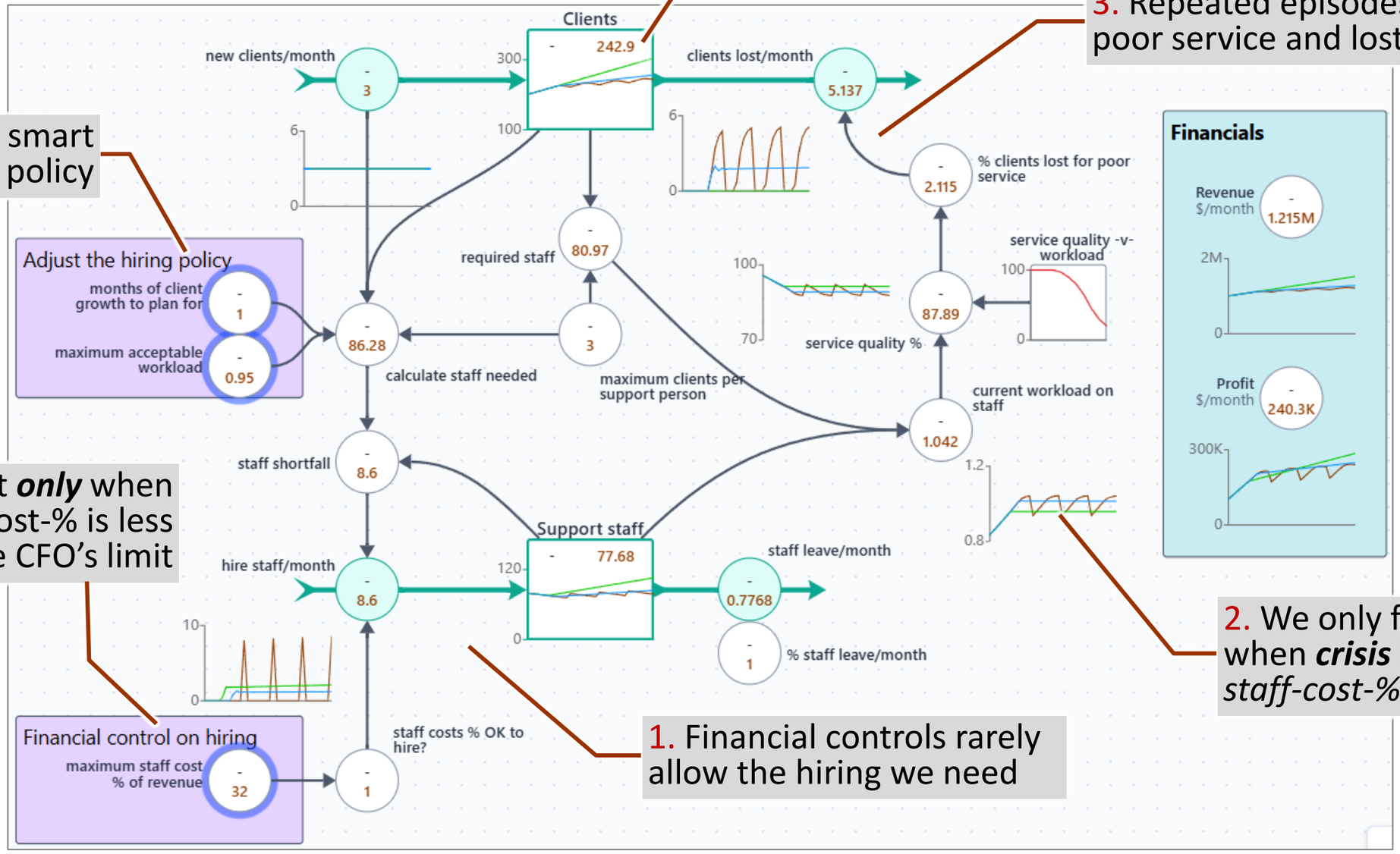
Add financial control …

4. Tight financial control kills growth

3. Repeated episodes of poor service and lost clients

The same smart hiring policy

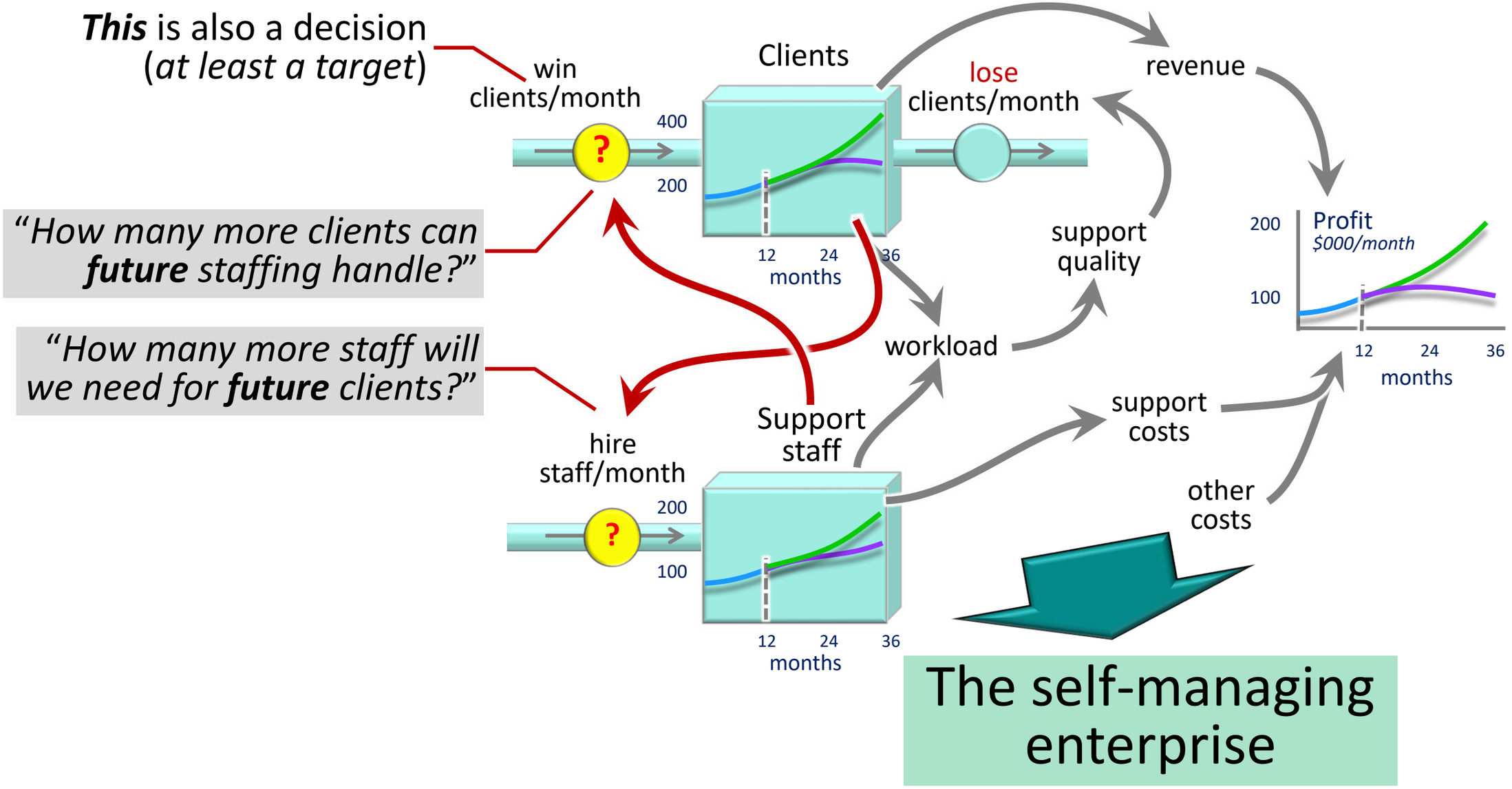
… but ***only*** when staff-cost-% is less than the CFO's limit



1. Financial controls rarely allow the hiring we need

2. We only fix workloads when ***crisis*** hits (*and staff-cost-% is low*)

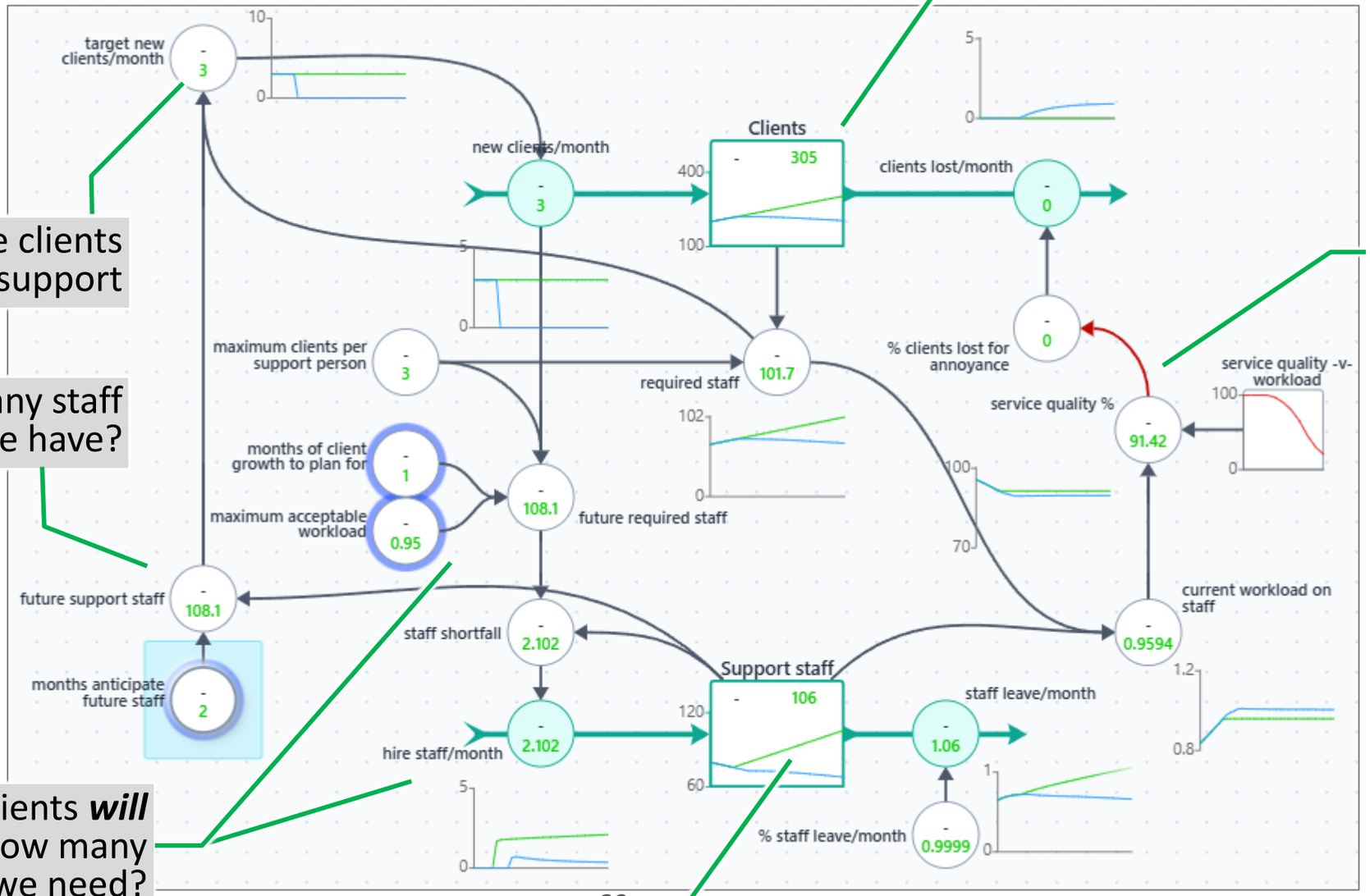
But also we make ***another*** decision!



The self-managing enterprise

Two agentic-AI auto decisions …

Client growth can continue



2. How many more clients ***will*** we be able to support

1. How many staff ***will*** we have?

3. How many clients ***will*** we have, so 4. how many more staff will we need?

Service quality stays OK

We grow staff ahead of need

See the ***rich model*** at: sdl.re/AImodelITS

… adds reputation and morale impacts

Good policies for agentic AI …

Focus on the ***Flows***, filling the ***Stocks***

Employ "***local***" targets (*workload*) not distant targets (*labour cost %*)

Allow some ***slack***

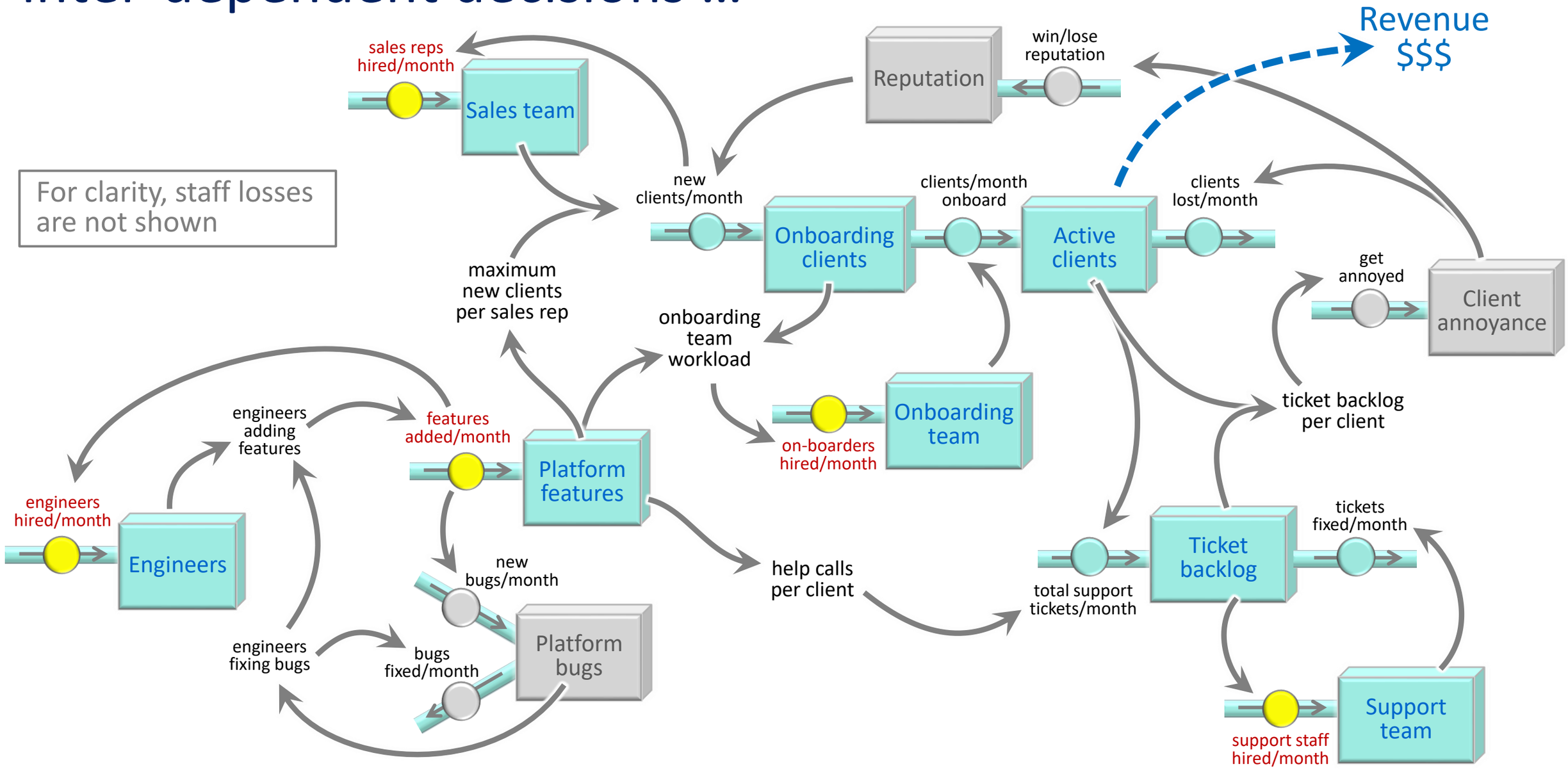
And look ***forward*** to set targets

(*We need Key Future Performance Indicators: KFPI's*)

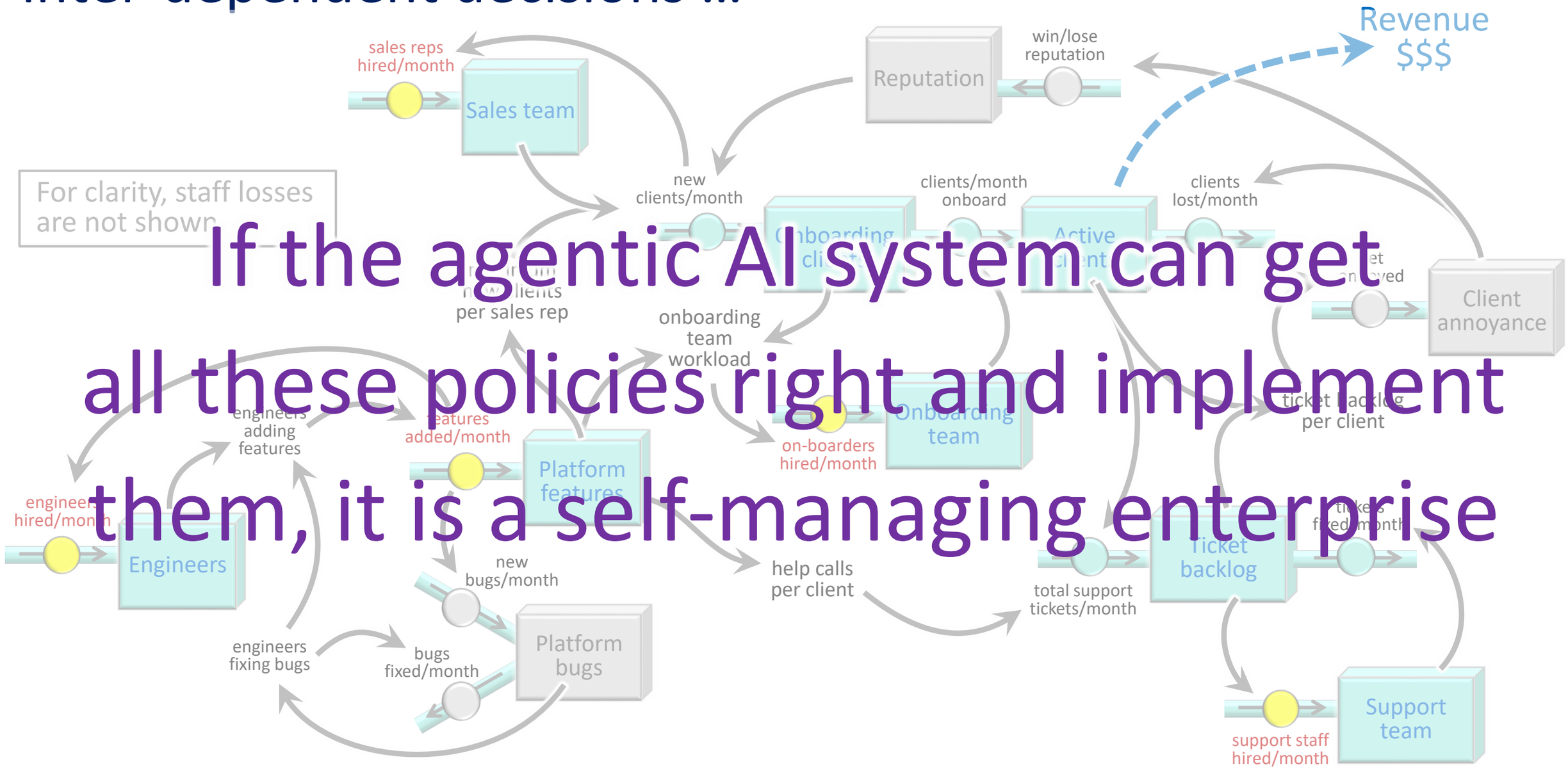
… AND check on the future impacts of each others' decisions

Get and share the slideshow: sdl.re/AIshowITS

A business-to-business SaaS firm, with five inter-dependent decisions …



A business-to-business SaaS firm, with five inter-dependent decisions …



If the agentic AI system can get all these policies right and implement them, it is a self-managing enterprise

Online system dynamics courses

Build the self-managing IT support business model yourself … see sdl.re/buildAI-SME

50% discount on other courses – coupon **STSP50** …

SHORT COURSES on how dynamic models can support key Functions of the organisation and deal with common challenges. sdcourses.com/mini-courses/

“How to build a system dynamics model”

Two hours of video and 100 slides explain a reliable 4-step process for building any system dynamics model, with “follow me” steps in a friendly app, using a simple case. sdl.re/buildSDmodel (see free preview lessons)

“How to build a digital-twin business model”

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