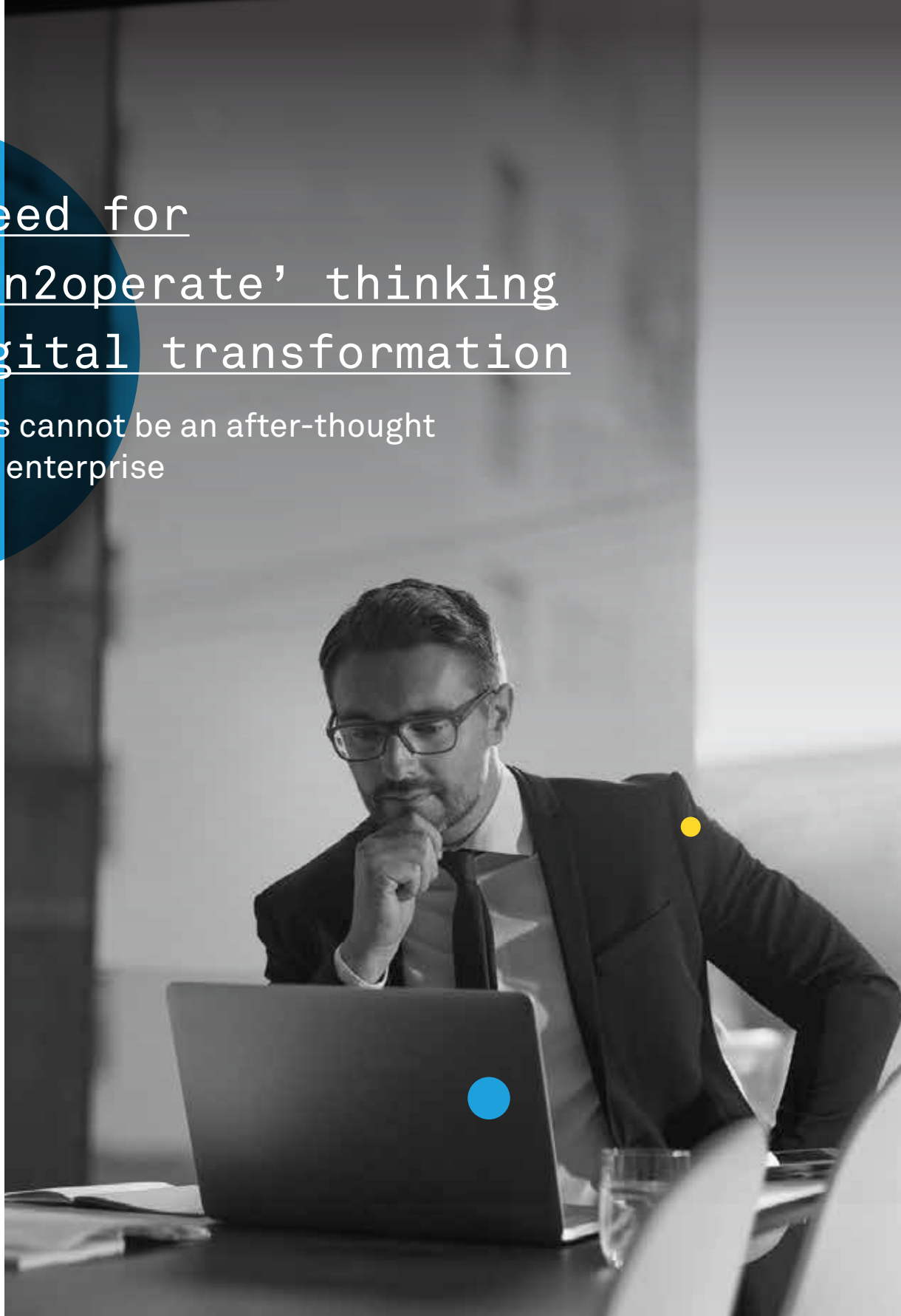


The need for 'Design2operate' thinking in digital transformation

Operations cannot be an after-thought
in an agile enterprise



The lifecycle of IT services has mostly been plan, build and operate – in that sequential order. In a site reliability engineering-enabled agile enterprise with programmable infrastructure across private and public Clouds, it becomes plan to operate, build to operate and create an operations architecture for new gen operations. Operations is not a sequentially different phase. Enterprises cannot afford to think of operations as an after-thought. This is due to the introduction of humongous changes, elasticity and complexity in running distributed services and too many short-lived moving parts. It is not about incident management any more, but incident avoidance.

Design2operate is a philosophy embedded into the plan, design and build phases so that the services are operable not just from day 1, but from day -n, 0, 1 and +n. Enterprises on large scale digital and cloud transformation programs are looking at ‘runnability’ (aka operability) as a first step of thinking even before implementing a ‘Change’. Operability planning needs to be embedded into the Cloud adoption journey all through, right from planning the portfolio and treating applications for Cloud, to ensuring reliable and fearless change management.

Mutations of the operations spectrum

Programmability of infrastructure has changed the way services are introduced, operated and destroyed. The following transitions (See figure 1) emphasize the need for implementing Design2operate thinking in a transformation program for every cloud adoption journey:

Mutable to immutable infrastructure: Patching and upkeep of configuration of a CI (configuration item) is history. Once a service is deployed, that instance of the service is never updated. Every deployment remains immutable for its life. Any change in the configuration triggers a new deployment. This demands infrastructure to cater to increased speed and frequency of deployments.

Incidence response to incidence avoidance: Response times and SLAs are history. Avoidance, auto-heal and Business Level Agreements (BLAs) are the measures of the new order. The instrumentation for operability to meet the BLAs are baked into the code defining the infrastructure environment. This demands that infrastructure architects and developers work closely with the service and application owners right from the planning phase.



Figure1 : Changes in the operations spectrum

DR to AlwaysOn: Disaster Recovery (DR), Recovery Point Objective (RPO) and Recovery Time Objective (RTO) are history. AlwaysOn is the new norm. The infrastructure environment is coded with auto-scale and auto-recover mechanisms. This enables scaling out the service on demand or relocate itself to a new region in disaster scenarios.

Human labor to digital labor: Tower-based headcount for operations is history. Bots enabled by artificial intelligence would completely invalidate the tower-based model for operations. The digital labor in an estate would be measured and enhanced more than human labor. Automation moves from tasks/process level to cognitive levels.

RFP/PO-free sourcing and fulfillment:

Self-service enabled sourcing and automated fulfillment across multiple providers will slowly eliminate long RFP and PO processes.

Waterfall to agile: Most Infrastructure automation and operations work will move away from a Waterfall to Agile model. The team composition, hence, has to be in small 8-10 cross-skilled members and aligned to services than towers.

In-source to crowd-source: The idea of 'jobs' is changing from full-time-employment to task-based-employment. As services get more and more commoditized, there will be more opportunities to atomize the jobs into smaller chunks which are delivered by people without being employed full time.



Key components of Design2operate paradigm

Like any other major transformation, all three aspects of people-process-technology need to be sufficiently considered to implement Design2operate paradigm. The specifics of these three aspects may vary based on the maturity levels of the organizations, but irrespective of the quantum of the change, there is a need for a shift in thinking about the operational model.

Technology

Some of the key technologies that enable Design2operate are:

- A strong infrastructure as code practice
- Marketplace and service catalog with automated aggregation, intermediation and arbitration of services across different providers
- DevOps technologies

- Real time infrastructure based operations that uses wire data enabled dynamic models and baselines to avoid incidents
- Digital labor pool

People

Organization structure has to significantly change to adapt a Design2operate paradigm (See figure 2). Some of the new skills required are:

- Patterns and practices
- Integrated IT finance management
- Infrastructure developers, site reliability engineers
- Agile practitioners
- Job atomizers
- Incidence avoidance analysts

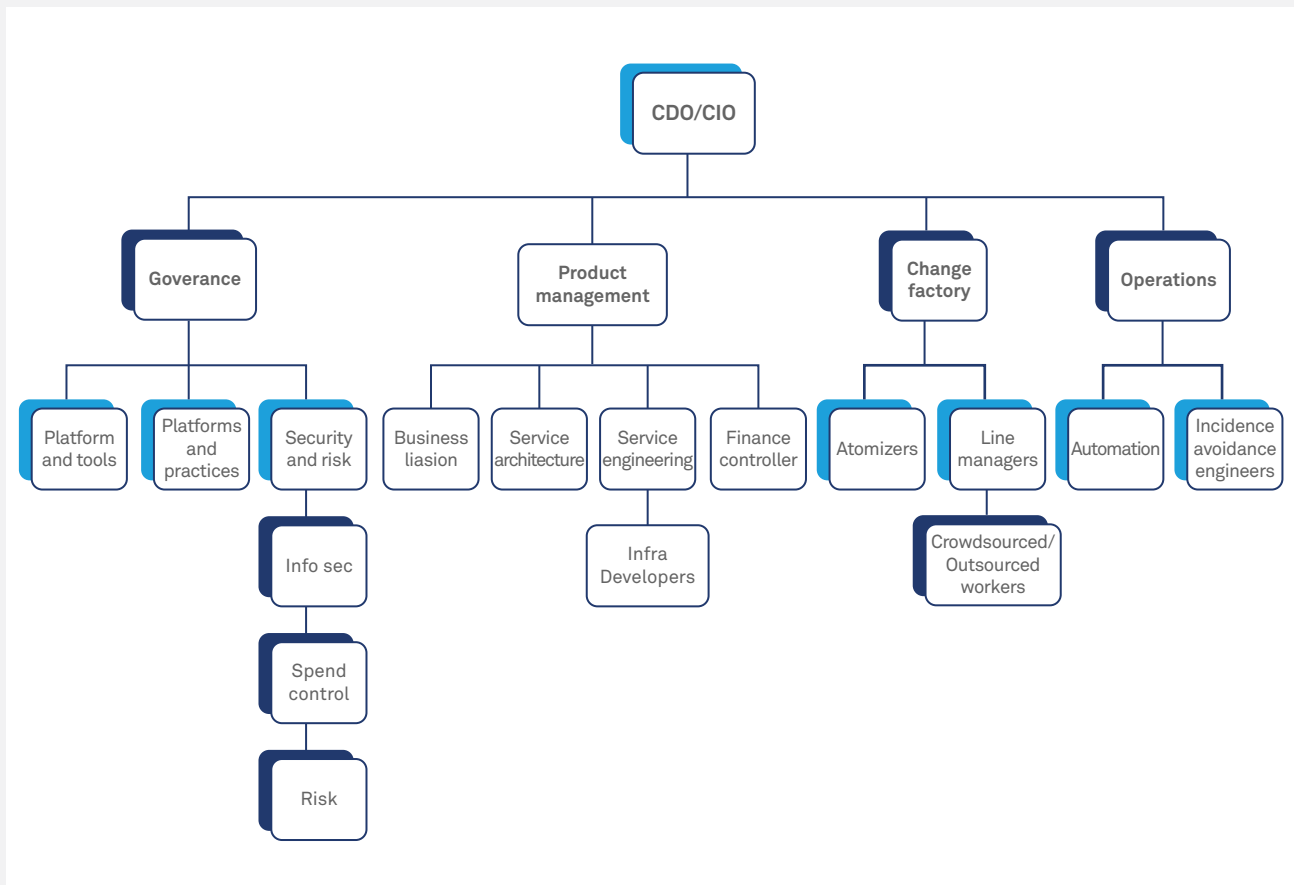


Figure2 : Sample organization structure to enable Design2operate

Process and governance

Some of the new processes that need to be developed and implemented are:

- DevOps release automation
- Quota management and approval workflows
- Spend management and optimization

Conclusion

Enterprises looking at large transformation programs, especially in the recent surge of Cloud adoption and acceleration, often overlook the operability of the dynamically changing services and increase their hidden costs over time. Design2operate thinking right from the planning stage of transformation can significantly reduce the costs and anxieties that crop up mid-way into the program.

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