



A resilient operating model

Organizing success critical tasks in a production plant
with the Viable System Model

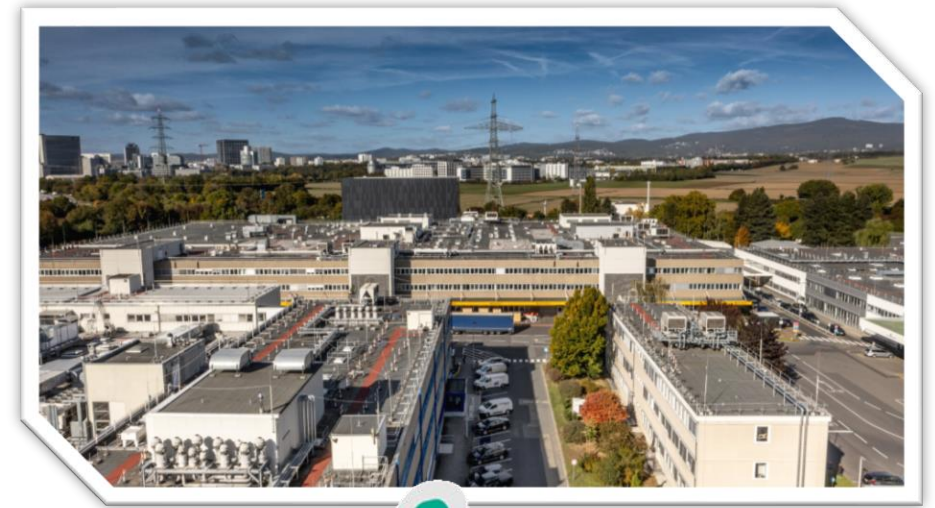


Nice to meet you!

Judith Hennemann

49 years old

- › Organizational Development Manager with Continental
- › Diploma in Industrial Sociology
- › VSM Coach
- › Influenced by shopfloor culture
- › Poetry writer



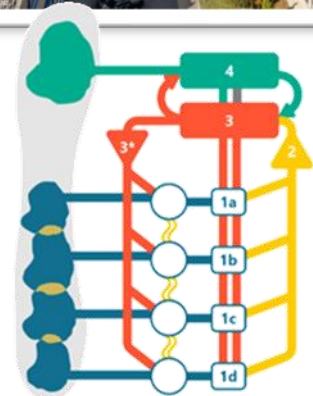
Mar 2, 2024

Coursera Learner

has successfully completed

OKR Certification: Leadership and Goal Setting

an online non-credit course authorized by Measure What Matters and offered through Coursera



What the Viable System Model can do for you



Segmentation check: Is our organizational setup **conducive for creating value** for the market?



Manageability check: Is our organization **controllable** from the management's point of view?



Control of complexity: What drivers of **complexity** are we facing, what practices do we use for **modulation**?



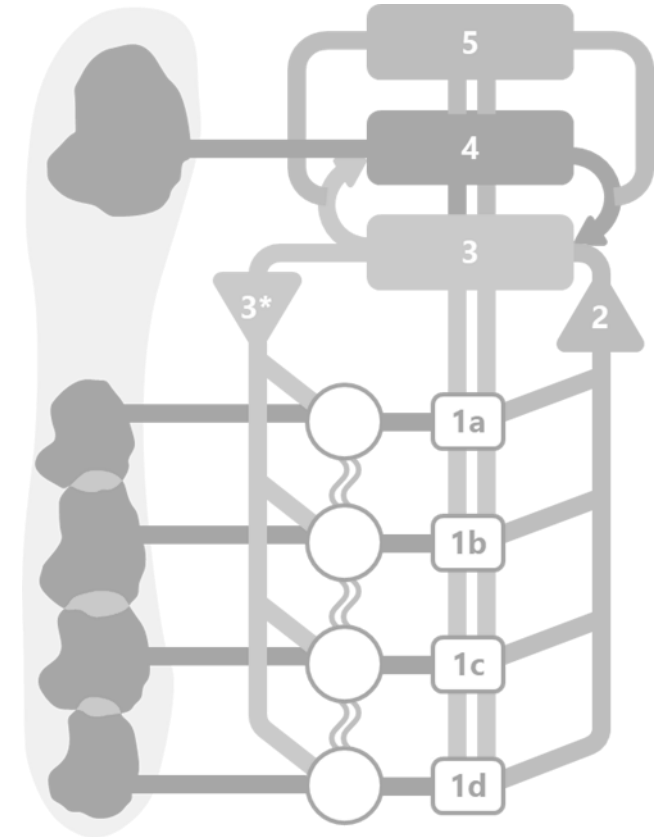
Control of major challenges: Does our organizational setup **cover** the management of all **major challenges**?



Decentral or central decision making: On which **level** of the organization should **decisions on major challenges** be made?

What the Viable System Model can help you create

Diagnose_Org_Setup
Meeting_Structure
Communication_Structure
Viability Resilience Stress_Test
RASIC
Operating_Model
Responsiveness
Modulating_Complexity
Organizational_Design
Meeting_Agendas
Flight_Levels
Role_Description
De(central)_Decisionmaking



<https://simplewordcloud.com/>

The request from the senior management



“

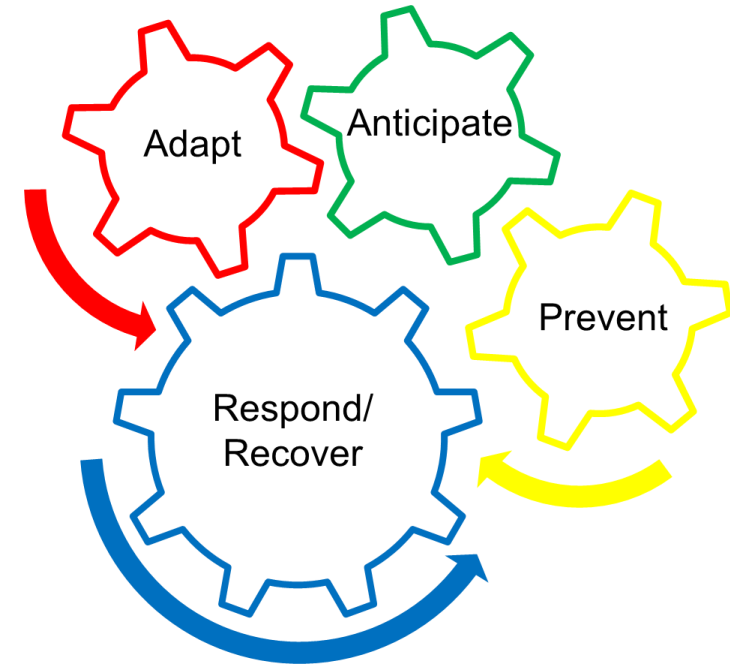
Define crucial competences of a resilient production plant

”

Organizational Resilience

“An organization can be operationally resilient when they anticipate, prevent, recover from, and adapt to adverse operational events.”

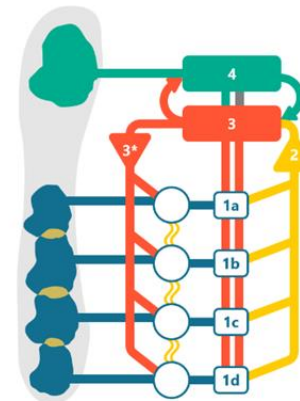
<https://www.servicenow.com/products/governance-risk-and-compliance/what-is-operational-resilience.html>



Effectiveness Study on Viable System Model (VSM): “The VSM endows practitioners (...) with a precious, effective conceptual device to enable better organization and management. (...) This implies that the VSM is a reliable orientation device for the diagnosis and design of organizations to strengthen their vitality, resilience, and development potential.”

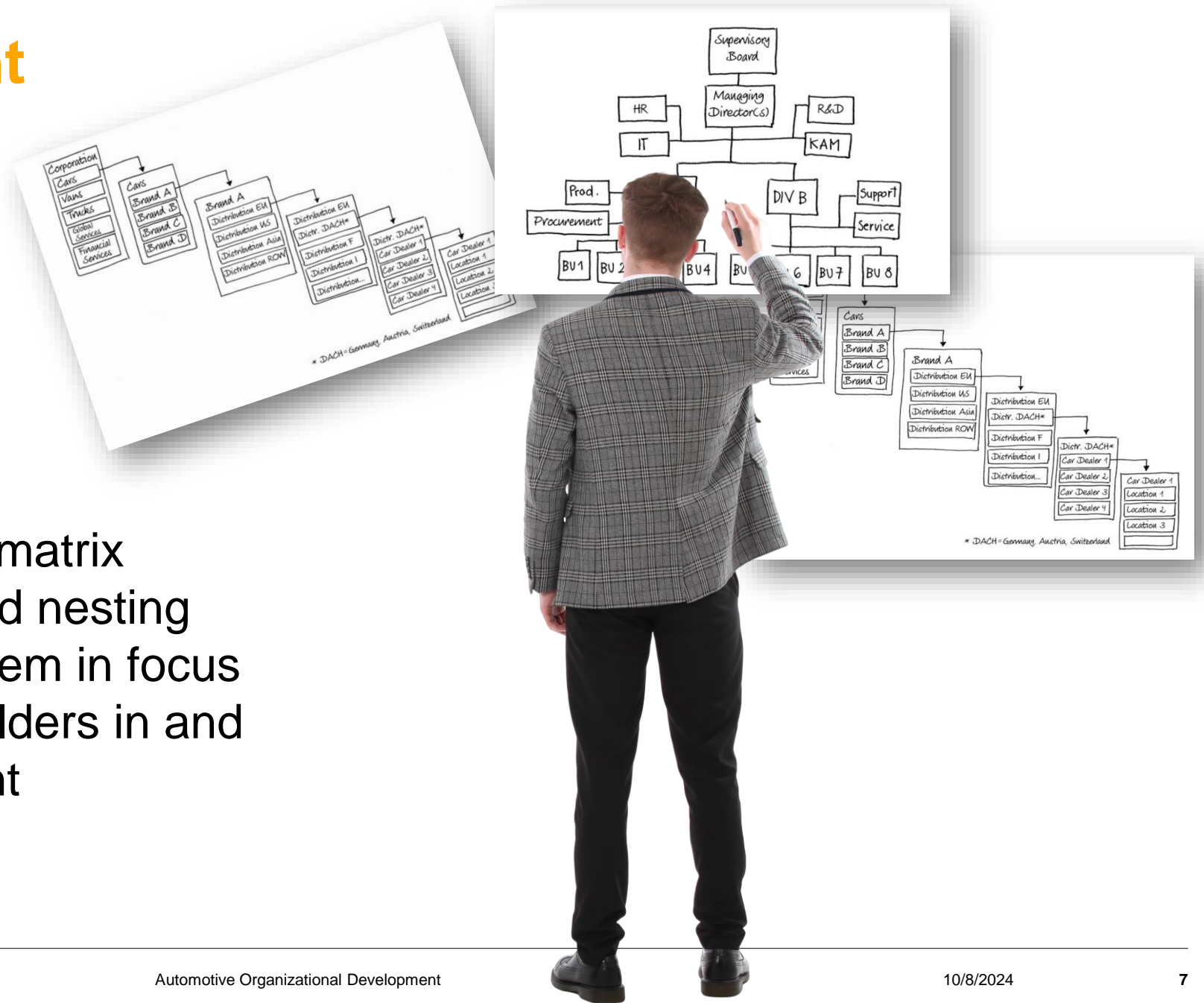
<https://www.alexandria.unisg.ch/server/api/core/bitstreams/47da4789-4257-4c74-ad5a-9185fe54afc4/content>

*Markus Schwaninger and Christine Scheef (2016), Institute of Management, University of St. Gallen, Switzerland



- System 5: Business Mission (Purpose, Identity)
- System 4: Outside & Then (Strategy)
- System 3*: Real-Life Information (Audits, Surveys)
- System 3: Inside & Now (Synergies, overall optimizing)
- System 2: (self-) Coordination
- System 1: (self-steering) Operation, Fulfill purpose

Groundwork upfront

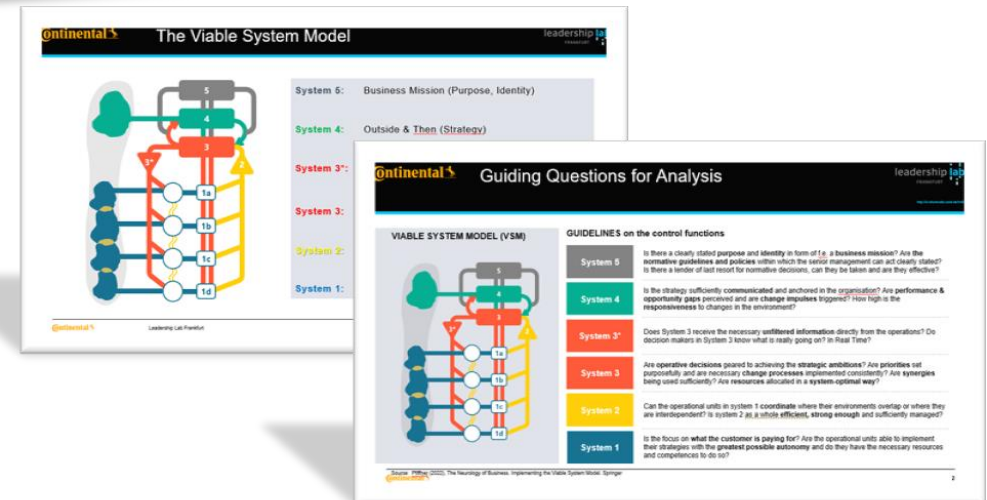
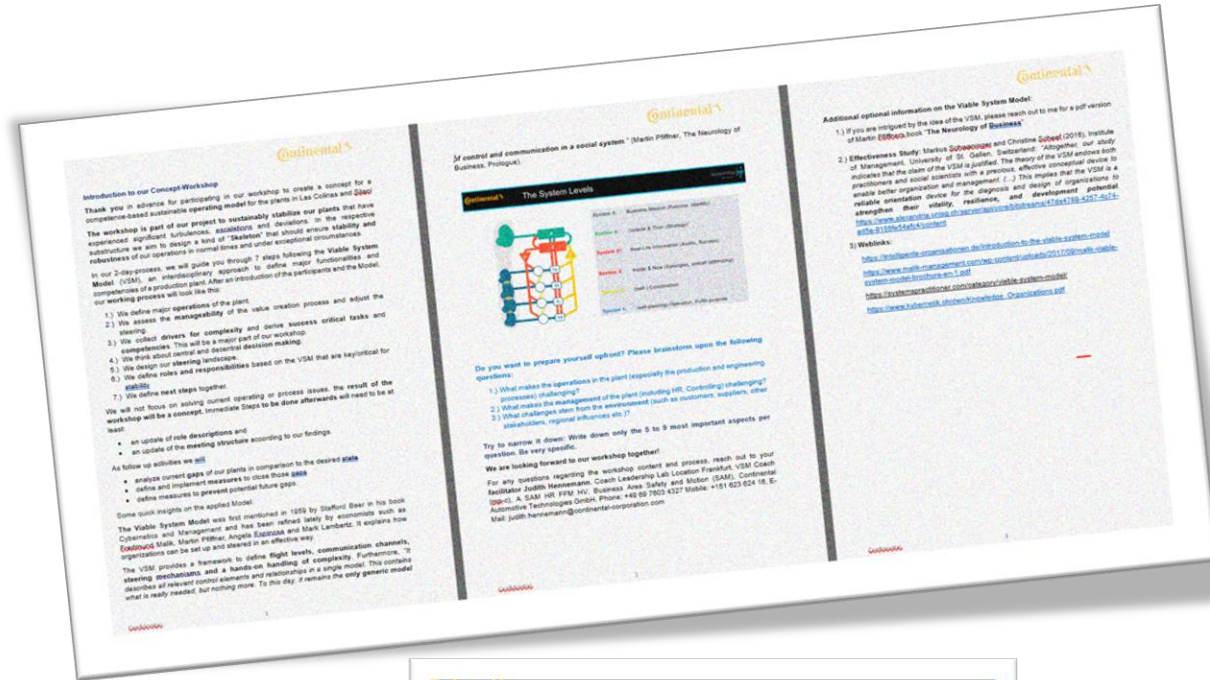


- › Understanding matrix organization and nesting around the system in focus
- › Collect stakeholders in and outside the plant

Groundwork upfront

3-Pager for the Participants:

- Objective of workshop
- Model with background information
- Link to an effectiveness study on VSM
- Facilitator contact data
- Laminated handout with model and guiding questions



2day workshop agenda

Time	Content First Day	Method
08:00	Welcome , Agenda, Introduction	Presentation/Talk
08:45	Introduction to the Viable System Model: The Model and how it helps us with regards to stability	Presentation
09:15	Get an overview on the current organization, define scope of our concept	Flipchart
09:45	Purpose of the Plant (customer buying criteria, strategy)	Template, slides
10:15	Break	Template
10:30	Decide segmentation of the core process (from the perspective of core competencies)	Template
11:30	Check manageability (steering of core processes)	Template
12:30	Lunch Break	
13:30	Strengthen steering roles (if necessary)	Templates
14:00	Core tasks (drivers for complexity, based on core processes and steering needs)	Template, complexity input
15:00	Break	Presentation
15:15	Core competencies	Template
17:30	End	

Time	Content Second Day	Method
08:00	Recap First Day, still on track? What's on the agenda today ?	Agenda
08:30	Decisionmaking (central, decentral: Where to place core decisions, decision tree)	Templates
09:30	Break	
09:45	Create steering and communication structure : Ensure stability of core processes by steering and support structure	
11:45	Create RASI Chart	
12:30	Lunch Break	
13:30	Finalize the skeleton concept	
15:30	Join sharing session in plenum	
17:00	End of workshop	

1) Introducing the model

Background

Doctorate under Fredmund Malik, mentored by Stafford Beer (founder of the VSM)

Contemporary Cyberneticians

Cybernetics is a field of systems theory that explains general principles of biological, technical and social systems and their circular causal processes. It includes practical activities such as designing, learning, and managing. (Wikipedia)

The Viable System Model was developed by business theorist Stafford Beer in his book *Brain of the Firm* (1972). Beer founded management cybernetics.

What is a system?

"A set of elements with interdependencies with each other and with the environment. ... if the whole is something other than the sum of its parts."

It's about the connections

Don't overthink

"The purpose of a system is, what it does."

The Neurology of Business

Which system is best equipped to deal with complexity?

Keep in mind: We are looking at the control organization (not org-charts)

The third dimension of organizing

TOPIC	STRUCTURING ORGANIZATION	PROCESS ORGANIZATION	CONTROL ORGANIZATION
ANALOGY	Anatomy	Physiology	Neurology
REPRESENTATION	Organizational Charts, Function Diagrams, Job Descriptions etc.	Swim Lanes, Value Streams, BSCs, etc.	VSM

a Model for Viability inspired by the Nervous System

The System Levels

- System 5: Business Mission (Purpose, Identity)
- System 4: Outside & Then (Strategy)
- System 3*: Real-Life Information (Audits, Surveys)
- System 3: Inside & Now (Synergies, overall optimizing)
- System 2: (self-) Coordination
- System 1: (self-steering) Operation, Fulfill purpose

Principle of Recursiveness: A Trick of Complexity Management

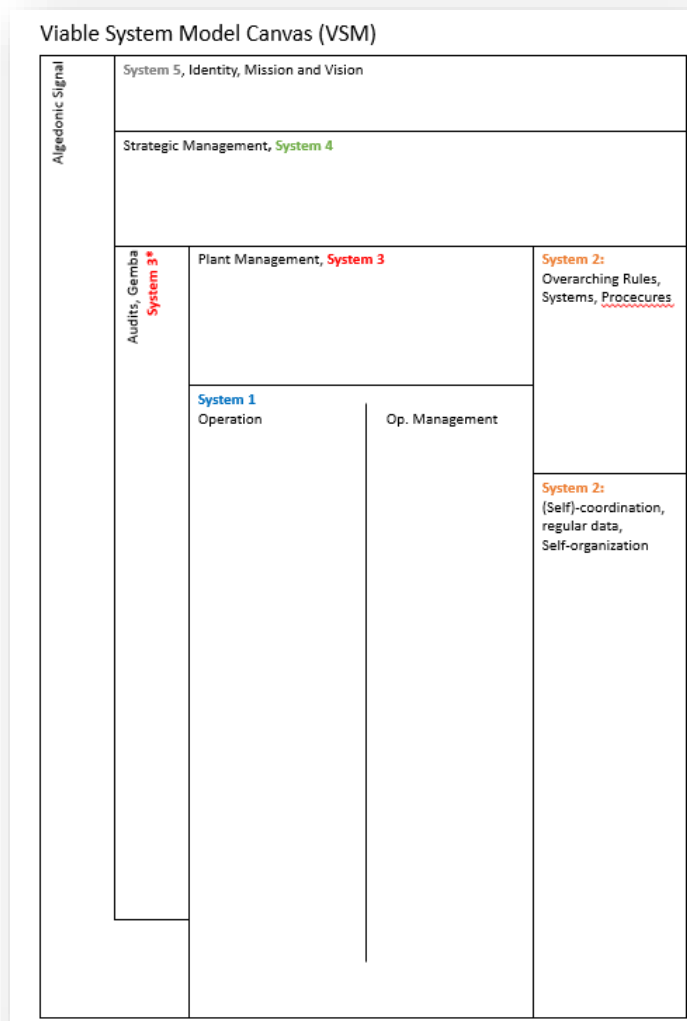
Every viable system is embedded in a viable system and is itself consists of viable systems.

VSM Process

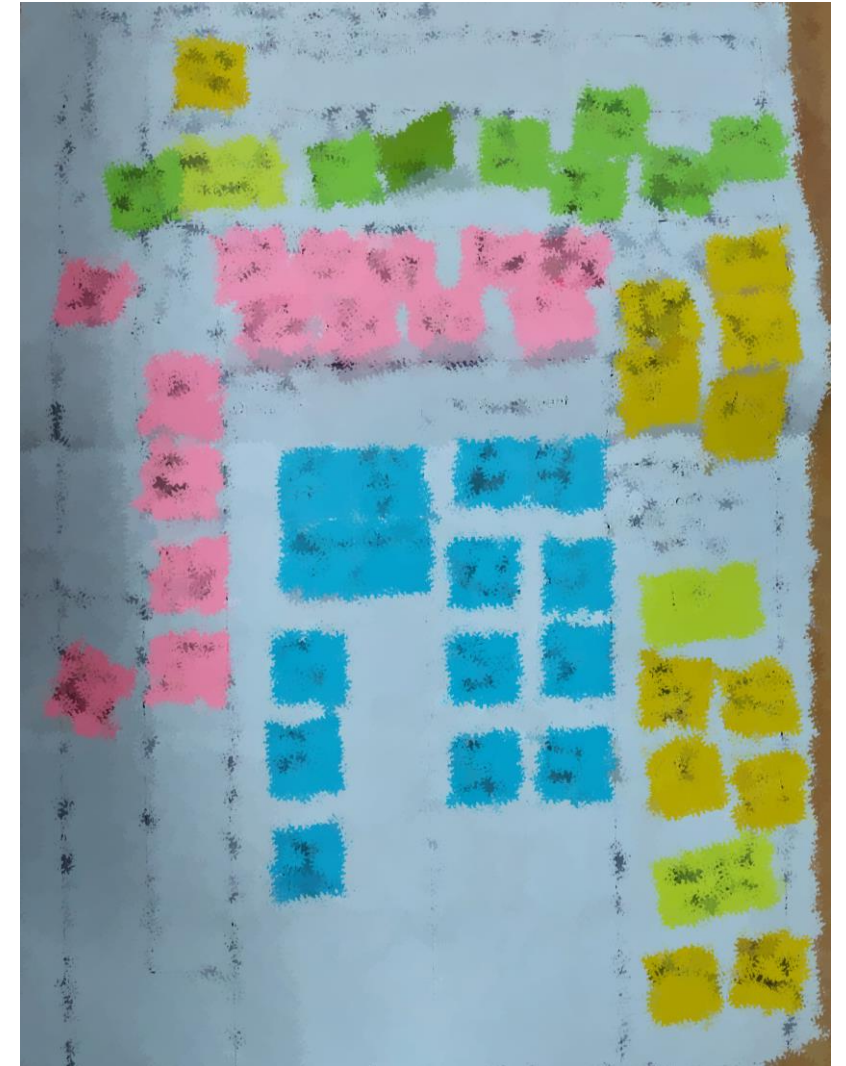
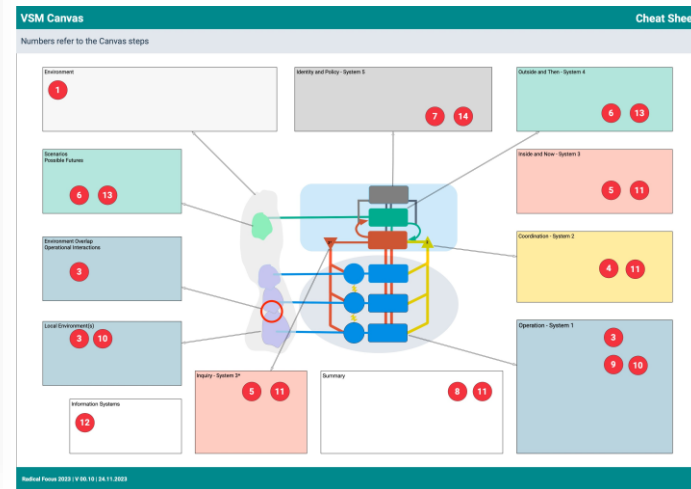
- VSM Toolkit
- Operative Units
- Manageability & Flattening
- Success Critical Tasks/Competencies
- Central or Decentral
- Designing S2-S5 (Communication Channels)
- Representation

What does the customer pay us for ?

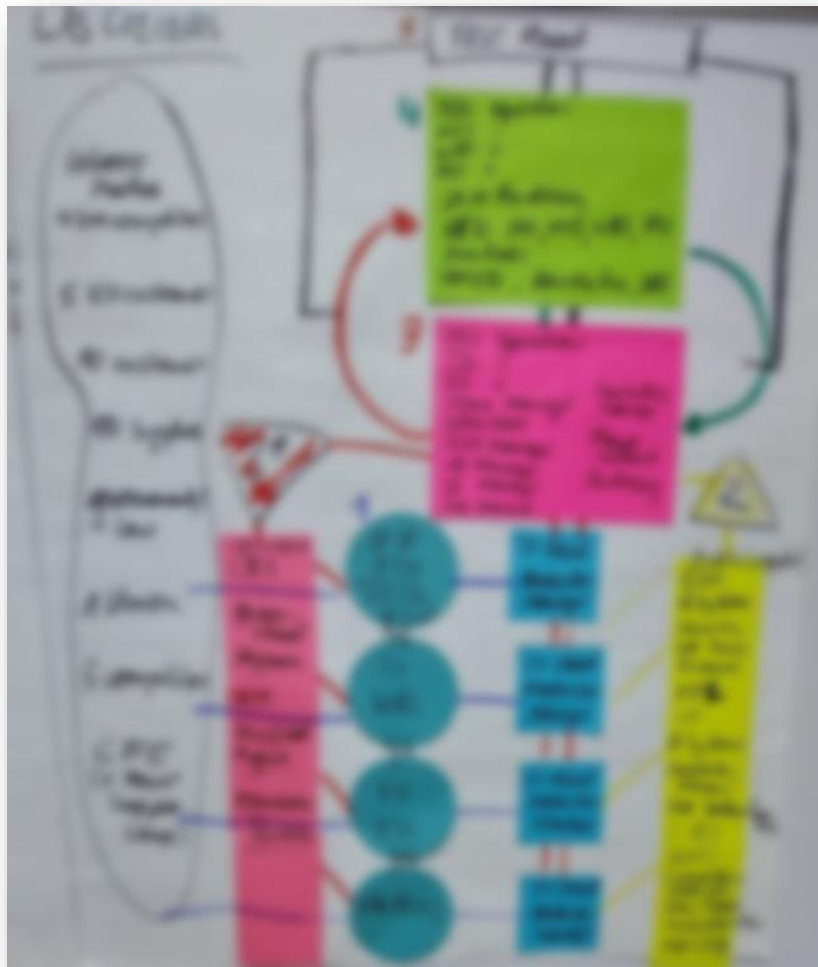
2) Collecting all the elements of the system



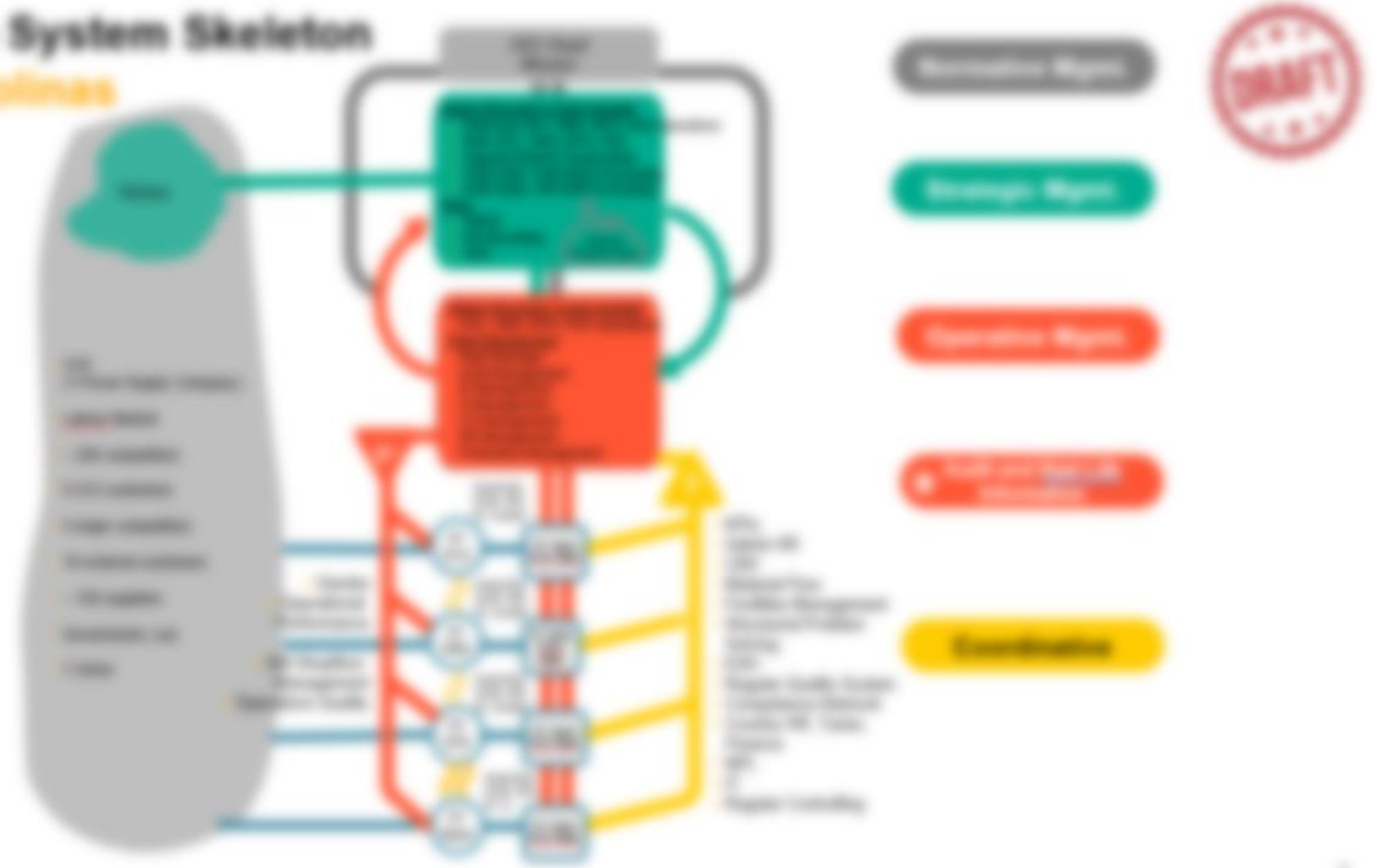
- › Canvas by Mark Lambertz or Krishan Mathis
- › Can combine several recursion levels
- › Bridges the org chart to the model



3) Drafting the system in focus



Viable System Skeleton
Las Colinas



4) Martin's segmentation check

- › Fill in customer buying criteria
- › Have the strategy at hand!

Continental		I. Segmentation		OPTIONS FOR SEGMENTATION				leadership lab FRANKFURT
	Criterion	weight (100%)	stronger/weaker	A	B	C	D	Comments
Key Buying Criteria	1 e.g. Functionality							
	2 Reliable quality							
	3 Reliable delivery							
	4 Customer service							
	5							
	6							
	7							
Strategic Directions & Initiatives	Market Position							
	Innovation							
	Productivity							
	Attractiveness for good people							
	Liquidity/Cash Flow & Profitability							
			Total					

5) Complexity input and Martin's manageability check

Quantifying complexity

Complexity is expressed by the measure of the **variety**:

"How many distinguishable states can a system assume?"

Complex:		Complicated
No	Directions for use	Yes
No	Mechanical Watch	Yes
No	Jigsaw	Yes
Yes	Piano Keyboard	No
Yes	Cockpit	No
Yes	Poetry	No

Number of States Number of Elements

Excursion: Quantifying complexity

Lightbulb example

$2^1 = 2$ $2^5 = 32$

Number of possible states (= Variety)?

Excursion: How complexity accelerates

$2^{24} = 16$ Millionen

$2^{25} = 32$ Millionen

$2^{26} = 64$ Millionen

13 ★

14 ★

15 ★

II. Two Steering Axes

The autonomy, i.e. the permissible freedom of behaviour of System 1, can only be so great, so that the senior management can compensate it

The greater the autonomy and decentralization, the stronger the senior management must be to hold the whole thing together.

«Only variety can absorb variety!»
Ashby's Law of Regulate Variety
We don't need to know how big the variables are, just whether they are the same size.

II. Vertical Steering Axes to absorb variety

- Environmental Overlaps
- Auditing
- Dependences
- Resource Bargain & Accountability
- Corporate Intervention
- (Self-) Coordination

g) The total horizontal variety always corresponds to (!) of total vertical variety.

h) The six vertical channels can compensate for each other.

II. Assessment of horizontal and vertical variety

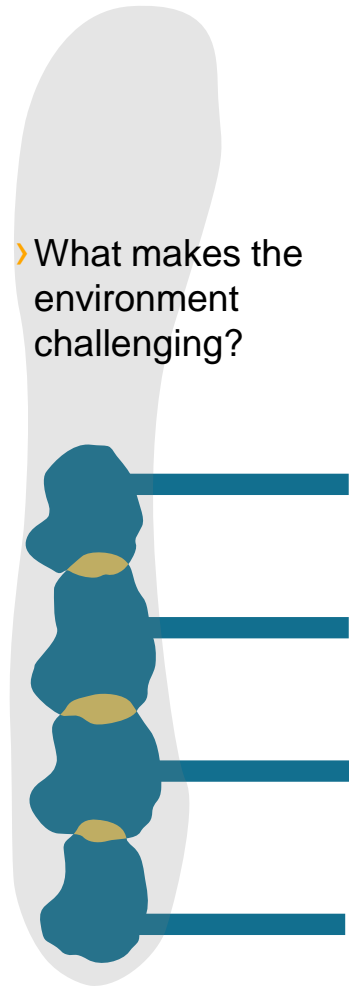
	COMPENSITY	COMPENSITY
... the amount of available skills		... Environmental Overlaps
... their flexibility		... System 1'
... their ability to control themselves (autonomously manage the variety of their system - seek)		... Operational dependencies
		... Resource Bargain and Accountability
		... Corporate Intervention
		... System 2

HORIZONTAL VARIETY VERTICAL VARIETY

Assessment: Assessment:

Conclusion: Conclusion:

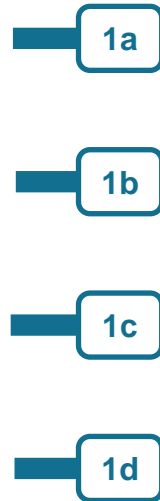
6) Collecting challenges from different perspectives



› What makes the operations challenging?



› What makes the management of the operation challenging?



› What challenges arise from the dependencies?

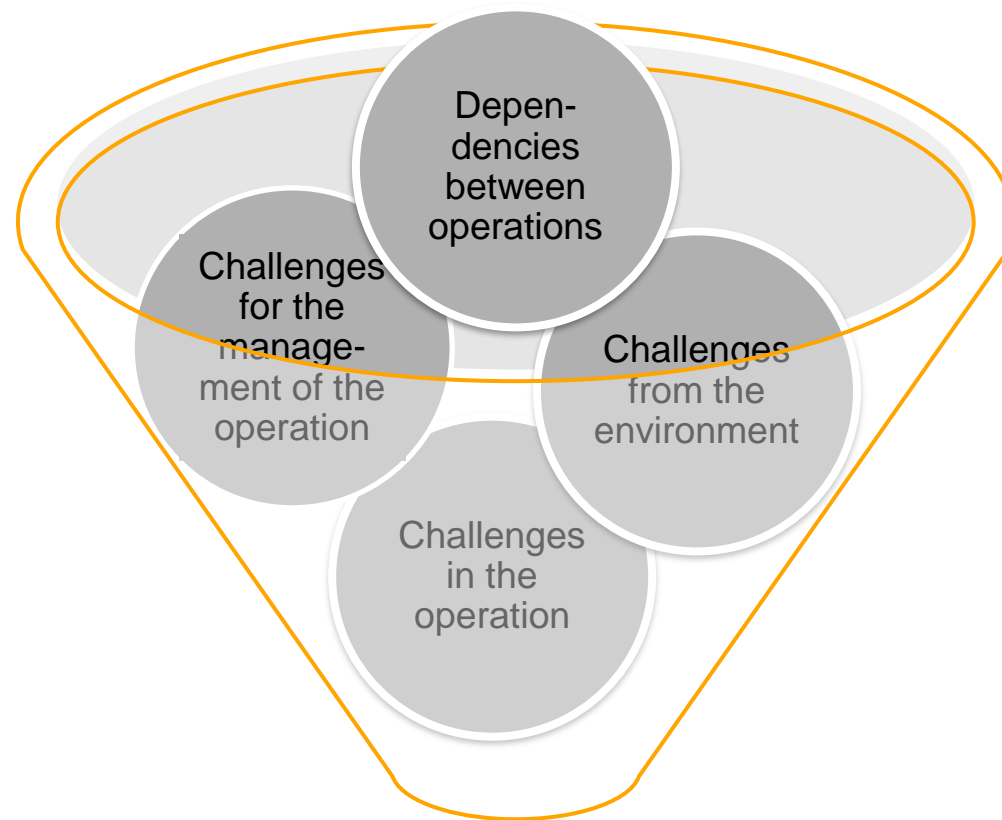


	Criterion	weight (100%)	stronger/weaker
Key Buying Criteria	1	e.g. Functionality	
	2	Reliable quality	
	3	Reliable delivery	
	4	Customer service	
	5		
	6		
	7		
Strategic Directions & Initiatives		Market Position	
		Innovation	
		Productivity	
		Attractiveness for good people	
		Liquidity/Cash Flow & Profitability	

6a) Pick key challenges



7) Derive success critical tasks



3-5 customer buying criteria



3-5 strategic key factors



30-40 Success critical tasks

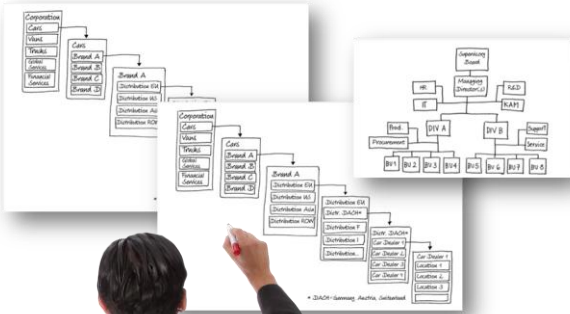


8.) RACI, role landscape and key factors for resilience

Responsible, Evaluated, Accountable in Choice, Controlled and Informed	Processes	Complexities	Plant Manager	Plant Management Team	House Factory Manager	Team Lead	Team	Quality	Plant Purchasing/SPM	Plant	Plant	Plant	Plant	Plant	Plant	Plant	Plant	Plant	Plant
System 3: Vision and Mission, Identity	Sets vision and mission, checks the balance between future and current business units boundaries and balances of System 4 and 5	Market and Context Analysis																	
System 4: Outline and Future Strategy	Sets the tone for System 3, is dominated with the environment for future trends, innovation, R&D, outsourcing, benchmarking																		
System 5: Business Model for adjustment	Business Model Canvas (BMC), Business Model Innovation (BMI), Business Model Innovation Canvas (BMIC)	Business Model Innovation Canvas (BMIC)																	
System 6: Business Model for adjustment	Business Model Innovation Canvas (BMIC), Business Model Innovation Canvas (BMIC)	Business Model Innovation Canvas (BMIC)																	
System 7: Business Model for adjustment	Business Model Innovation Canvas (BMIC), Business Model Innovation Canvas (BMIC)	Business Model Innovation Canvas (BMIC)																	
System 8: Business Model for adjustment	Business Model Innovation Canvas (BMIC), Business Model Innovation Canvas (BMIC)	Business Model Innovation Canvas (BMIC)																	
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System 10: Business Model for adjustment	Business Model Innovation Canvas (BMIC), Business Model Innovation Canvas (BMIC)	Business Model Innovation Canvas (BMIC)																	
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System 30: Business Model for adjustment	Business Model Innovation Canvas (BMIC), Business Model Innovation Canvas (BMIC)	Business Model Innovation Canvas (BMIC)																	



Lessons learned



- › Theory and systemic vocabulary: As little as possible, as much as necessary
- › Business objective comes first
- › Templates and handouts are useful



- › Prepare understanding of context, stakeholders, nesting of the organization beforehand
- › Not too many participants, but the right ones

- › Too complicated..... if not asked for, don't use the model for visualization of results

