



Hacking ML into your Organization

ML Reliability

CATHY CHEN ♦ 2021-Oct ♦ SRECon ML Track

Agenda

What's this about?

Deploying ML requires organizational changes to keep it reliable

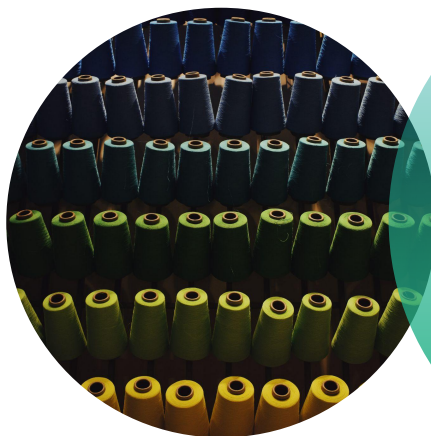
- The Scenario
- What's Wrong?
- Org Design
- Concrete Suggestions



Photo by [Paul Hanaoka](#) on Unsplash

HACKING ML INTO YOUR ORG

The Scenario: Yarnit.ai



OUR VISION

Best in Class
Machine Learning for
the Yarn Distribution
Sales Industry



INFORMATION TECH

- Convinced the rest of the C-Level execs that investment in ML is the way to make yarn sales take off
- Proof of Concept is working

PROOF OF CONCEPT

- Invest in the model, Test model quality and metrics about the model
- Made sure the Happy Path worked and the model is serving

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What Could Possibly Go Wrong?



**MANAGEMENT
TRUST**

**QUALITY,
FAIRNESS,
MODEL
ISSUES (NOT
MONITORED)**

**LACK OF
INVESTMENT**

**NO USER
FEEDBACK**

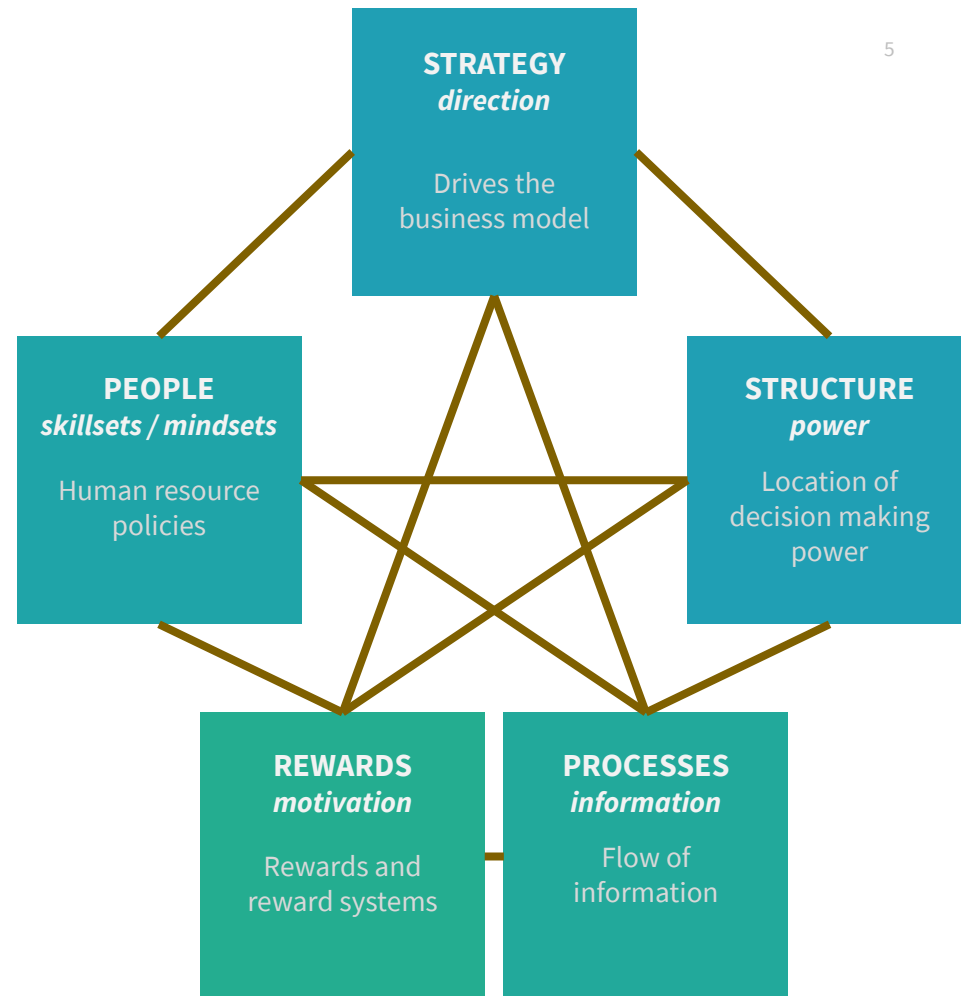
ML / ORG SILOS

and so much more...

HACKING ML INTO YOUR ORG

Org Design: Star Model™ (Galbraith)

- Structure is only one facet of an org design
- “Most design efforts invest far too much time drawing the organization chart and far too little on processes and rewards.”
- No one-size-fits-all
- Design org based on Strategy
- Policies around facets can be used to address negatives in structure

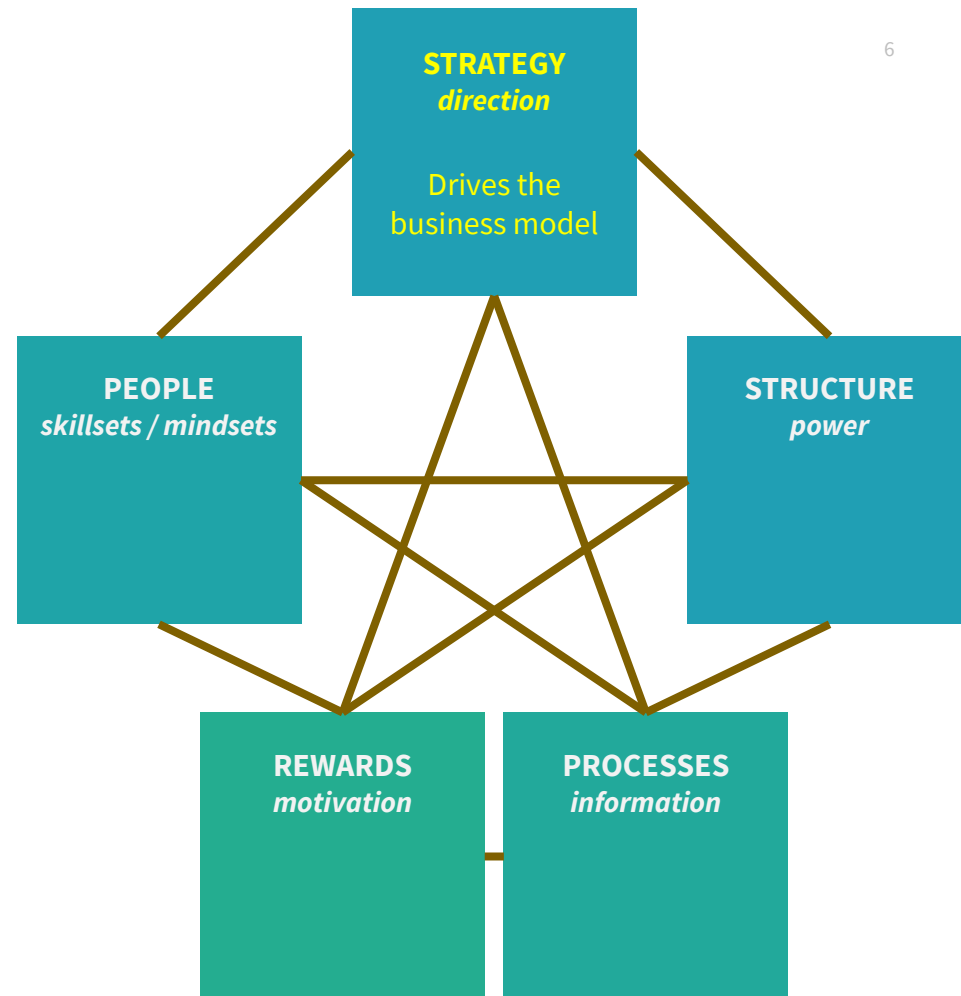


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Org Design: Star Model™ (Galbraith)

STRATEGY

- How will this business succeed?
- ie. Machine Learning in all aspects of the business

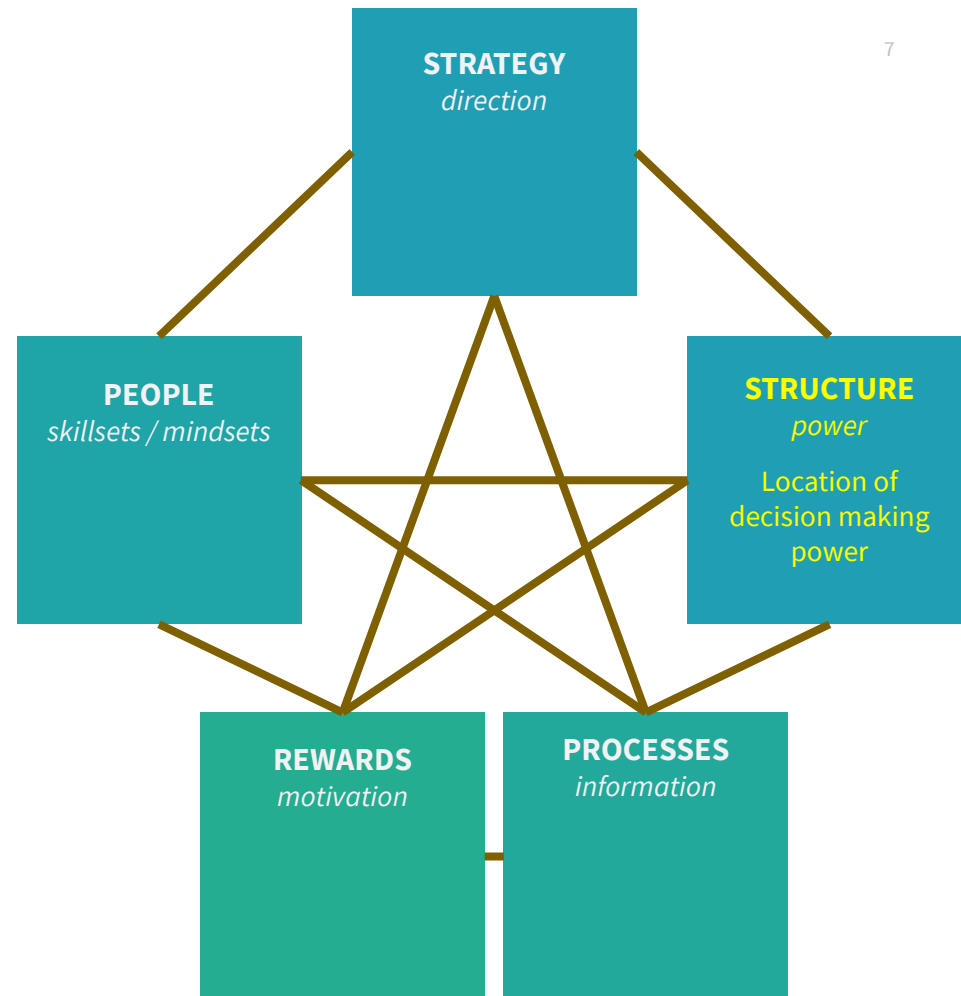


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Org Design: Star Model™ (Galbraith)

STRUCTURE

- MENTAL MODELS: Leadership mindset of ‘how things work’. Mental Models may need to change when using ML in the organization (centralization vs decentralization)
- See also Team Topologies book

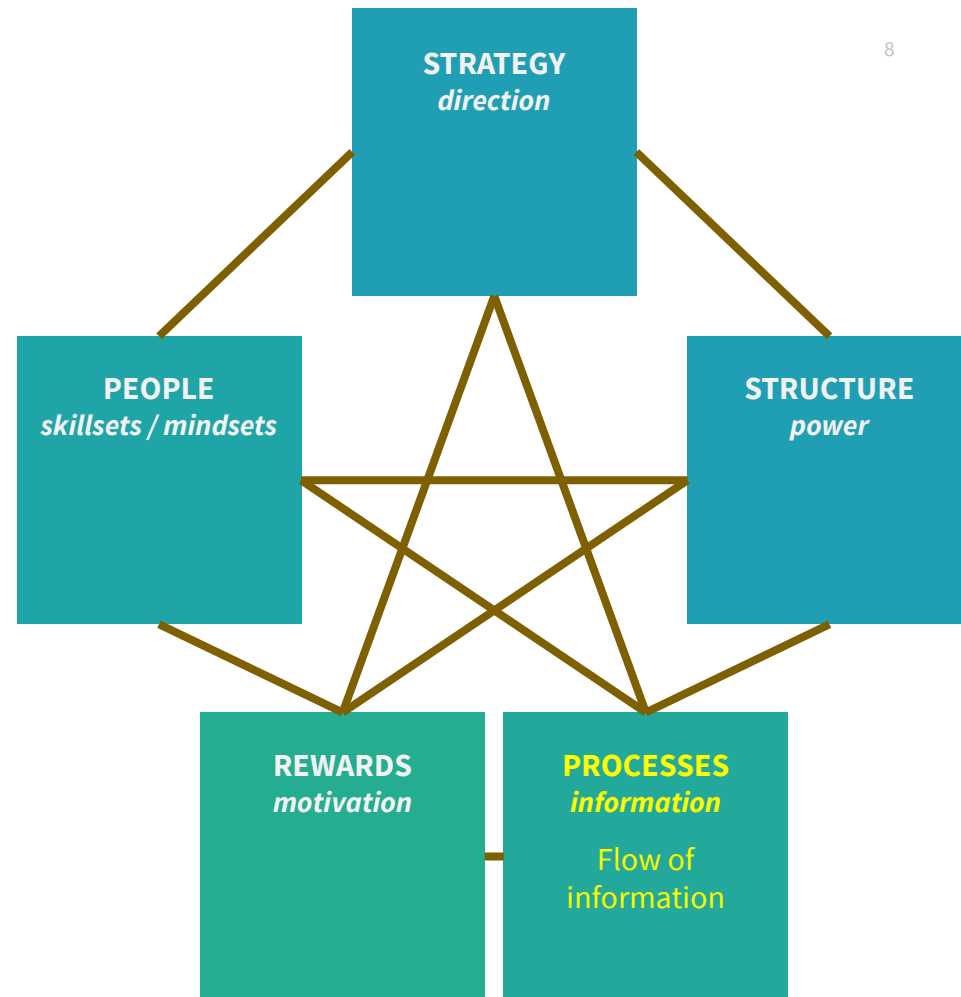


HACKING ML INTO YOUR ORG

Org Design: Star Model™ (Galbraith)

PROCESSES

- VERTICAL PROCESSES allocate the scarce resources (i.e. business planning, budgeting)
- HORIZONTAL PROCESSES are designed around the workflow. (i.e. new product development, or entry and fulfillment of a customer order)

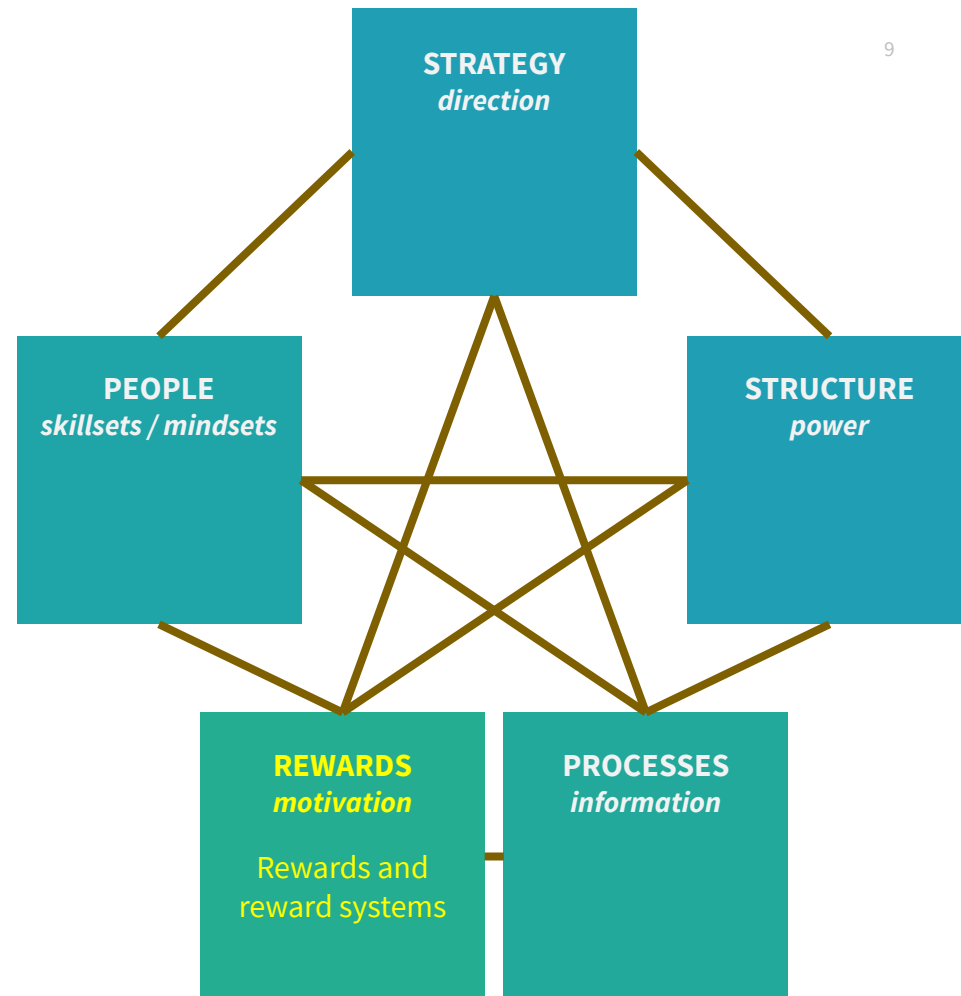


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Org Design: Star Model™ (Galbraith)

REWARDS

- FINANCIAL: salaries, promotions, bonuses, profit sharing, stock options, etc.
- NON-MONETARY: recognition or challenging assignments
- Must be aligned to influence the strategic direction

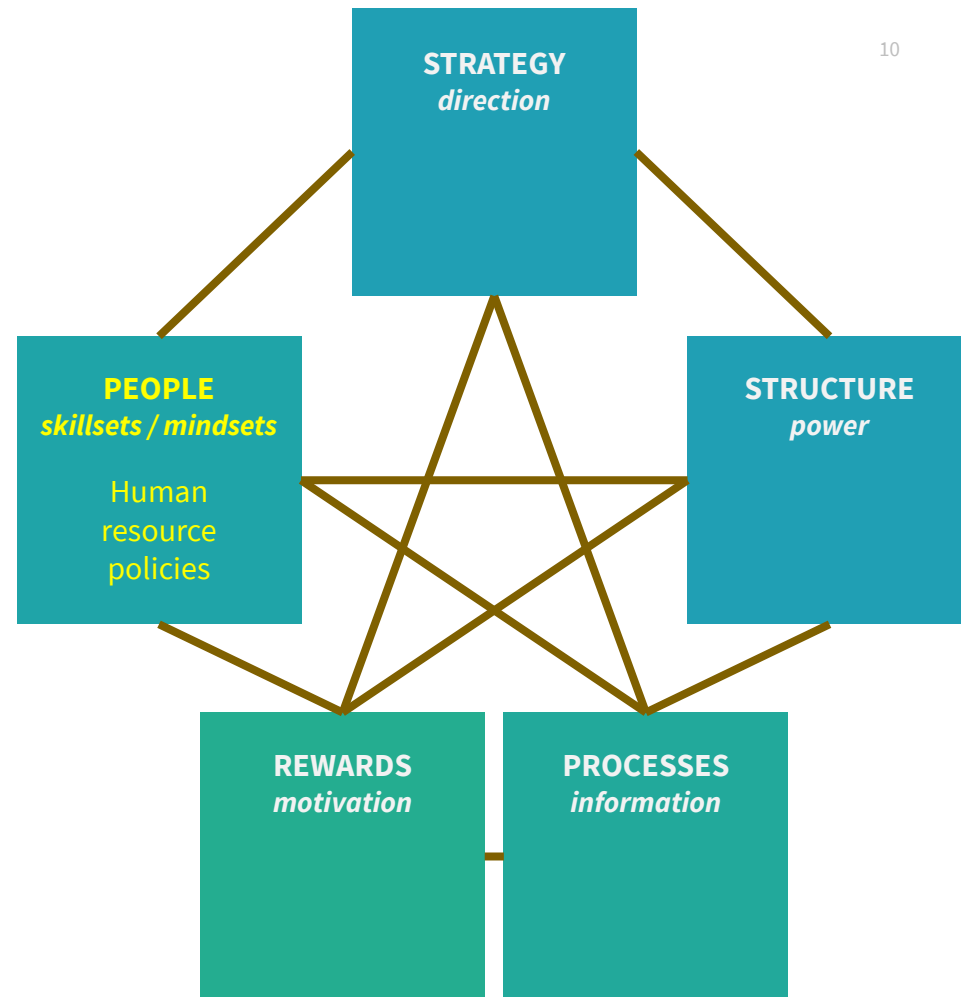


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Org Design: Star Model™ (Galbraith)

PEOPLE

- Human resource policies of recruiting, selection, rotation, training, and development
- ORGANIZATIONAL CAPABILITIES
 - Flexible organizations require flexible people
 - Cross-functional teams require people who are generalists and who can cooperate with each other
 - Matrix organizations need people who can manage conflict and influence without authority



HACKING ML INTO YOUR ORG

Adjust the Organization to Make it Right



**MANAGEMENT
UNDERSTANDS
& TRUSTS**

**QUALITY,
FAIRNESS,
MODEL
MONITORING**

**PROPER
INVESTMENT**

**USER
FEEDBACK**

**DISTRIBUTED
KNOWLEDGE**

Organizations are SYSTEMS. There are many levers to pull.

HACKING ML INTO YOUR ORG

Concrete Suggestions

ML EVERYWHERE

Build ML skills on the technical side



HACKING ML INTO YOUR ORG

Concrete Suggestions

SERIOUSLY, ML EVERYWHERE

Build ML skills on the business side,
too!



HACKING ML INTO YOUR ORG

Concrete Suggestions

APPLY THE STAR

Start thinking carefully about the organizational changes that would be needed to integrate ML into the organization



Thanks!

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Upcoming ML Reliability book

Subscribe to O'Reilly Learning Platform to check out early release chapters of the ML Reliability book by Cathy Chen, Niall Murphy, Kranti Parisa, D Sculley, Todd Underwood.

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References

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