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Socio-Technical Action Research Lab

Digital Socio-Technical Design

STARLab Action Research Workshop

Bill Pasmore (CCL)

Stu Winby (Spring Network)

Message to the Reader,

In January 2018, a two-day “action research Digital STS” workshop was given on Digital Socio-Technical Design to members of the STARLab Alliance. The workshop was based on previous published case research as well as current STARLab data. The workshop was a combination of instruction and action research.

Parts of the workshop are propriety to STARLab members. However, we wanted to provide an abbreviated overview for our IRC4HR partners and their community. Contents of this slide deck are sample concepts, models, and tools for digital socio-technical design.

This workshop overviews emerging digital organization design models and tested methodologies of digital socio-technical design.

Introduction - Objectives

1. To increase participant understanding of digital socio-technical systems/design concepts and practice

2. To provide an opportunity for participants to share company examples and tools

3. To improve cross-company relationships for future sharing and support

Introduction - Deliverables

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What you will learn

- Basic concepts of high performance organizations
- Examples that demonstrate STS principles, methods, and concepts
- Digital STS design methodology, tools and techniques
- Tools and formats for data collection
- What others are doing and learning from designing digital work systems

Introduction - Agenda

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1. **Introduction**
   Our purpose, objectives, agenda, who we are, and how we work together

2. **Digital Technology and Organization Design**
   What is the impact of digital technology on org design?

3. **Three Levels of Design: Strategic, Ecosystem, and Operations**
   A perspective of Strategic and Ecosystems levels in addition to operations

4. **Socio-technical Systems**
   Overview of history, concepts, methodology

5. **Digital Socio-Technical Design - Methodology**
   Two case walk-throughs (steps, methods and tools) and Simulation

6. **Next Steps**
   Determine next steps

Introduction – Agenda and Schedule

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DAY ONE

AM

1. Introduction
2. Digital Technology and Organization Design
3. Three Levels of Design: Strategic, Ecosystem, and Operations

PM

4. Socio-technical Systems Overview
5. Satellite Case – case overview of steps and methods

DAY TWO

AM

5. Digital Socio-Technical Design - Methodology

PM

6. Next Steps

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What is the Impact of Digital Technology on Organization Design?

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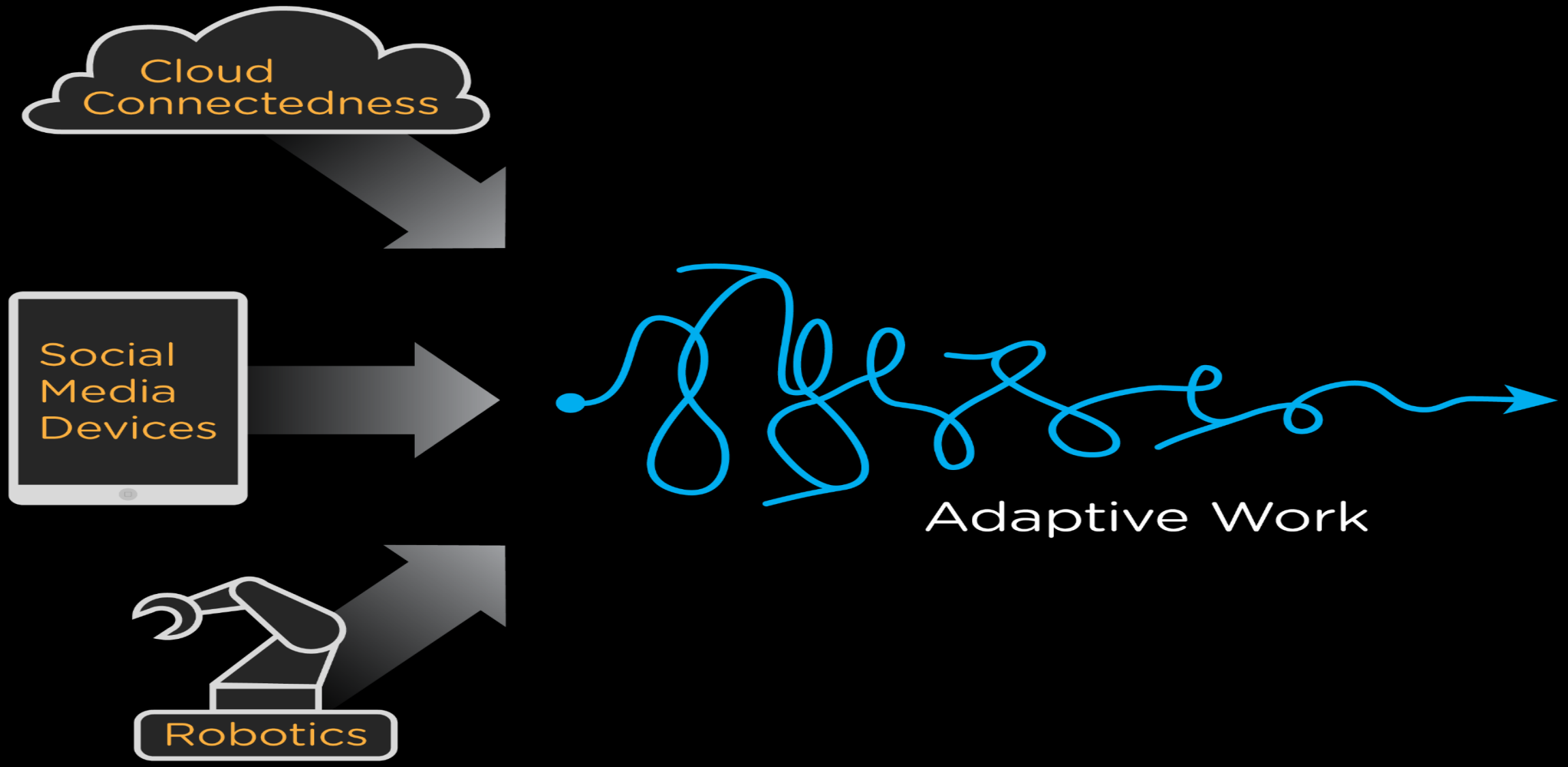
- Decentralizing information processing – thus shifts power to the periphery and bottom of the organization
- Increases uncertainty and the speed of change – thus requires flexibility and speed in responsiveness
- Unit of organization design analysis moving to the ecosystem
- Shift from product to customer structures
- Creation of lead (technology) / lag (legacy org design) arrangement where the gap is getting larger…
- Power and decision making moving to the operating model
- Etc…..

Technology Leads

Social Systems Lag



Emerging new paradigm of organization

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The emerging digital based organization as a new paradigm has as its premises the need for flexible, learning organizations that continuously change and solve problems through interconnected coordinated self-organizing processes.

It appears that digital based decentralized business organizations represent a new world of work with new principles and dimensions.

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Three Level of Design

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Current Model of Organization Design

Strategic Design (Strategy – Structure Focus)
(Top Down - Congruence / Galbraith's STAR model)

Operational Design (Operating Model Focus)
(Bottom-up – STS)

Emerging New Model of Organization

Strategic, ecosystem, operating model and projects reconfigurable and integrated.

Given digital technology is so pervasive to information processing we see STS as a leading driver.

Organization Design - 10 Trends

1. **Ambidextrous organizational** strategy to support business strategy
2. Emerging executive team structure – **four Organizational capabilities model**
3. Key leadership competency – **Recognition, choice, and alignment**
4. Drive change through deliberations – **Fast learning design teams**
5. Design for reconfigurability, speed, and agility **– Adaptive Work System**
6. The new work design **- Deliberations**
7. The new unit of analysis – **Ecosystems, platform design and smart teams**
8. Socio-technical Optimization **- human augmentation**
9. Organize for high performance **- Socio-technical system**
10. Continuous digital literacy and skilling **- HR**

Ambidextrous Capability

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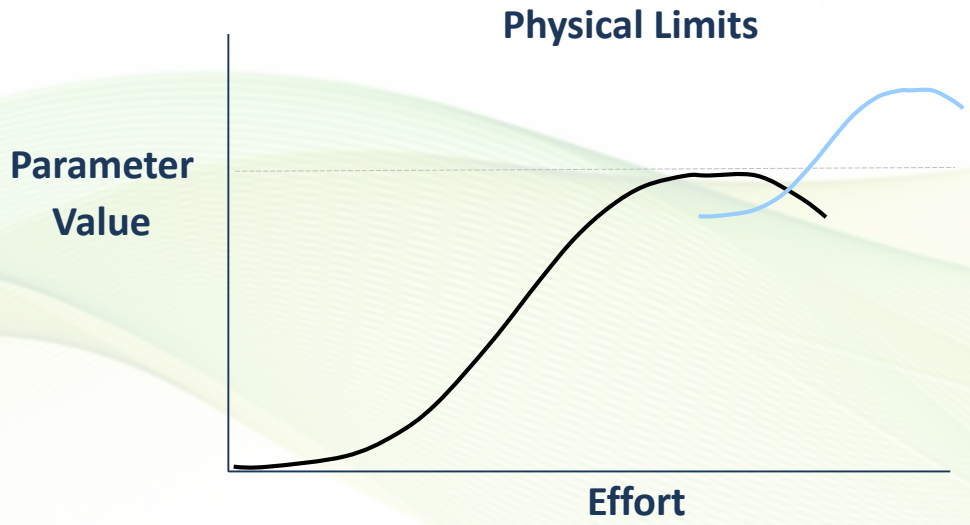
Foster's "S" Curve



Strategic Implications:

Once returns to effort fall, it may be time to move to a new "S" curve.

Organizational Issues:

The organizational assets, capabilities and structures best suited to exploit an existing S curve may not be those best suited to jumping to a new one.

In General:

Returns to effort are initially small. Once key choices are made – once the "dominant design" is established, progress is much faster. However, as the "natural limits" of the technology are approached, progress is much more expensive.

Disruptive Innovation in a Commodity Market

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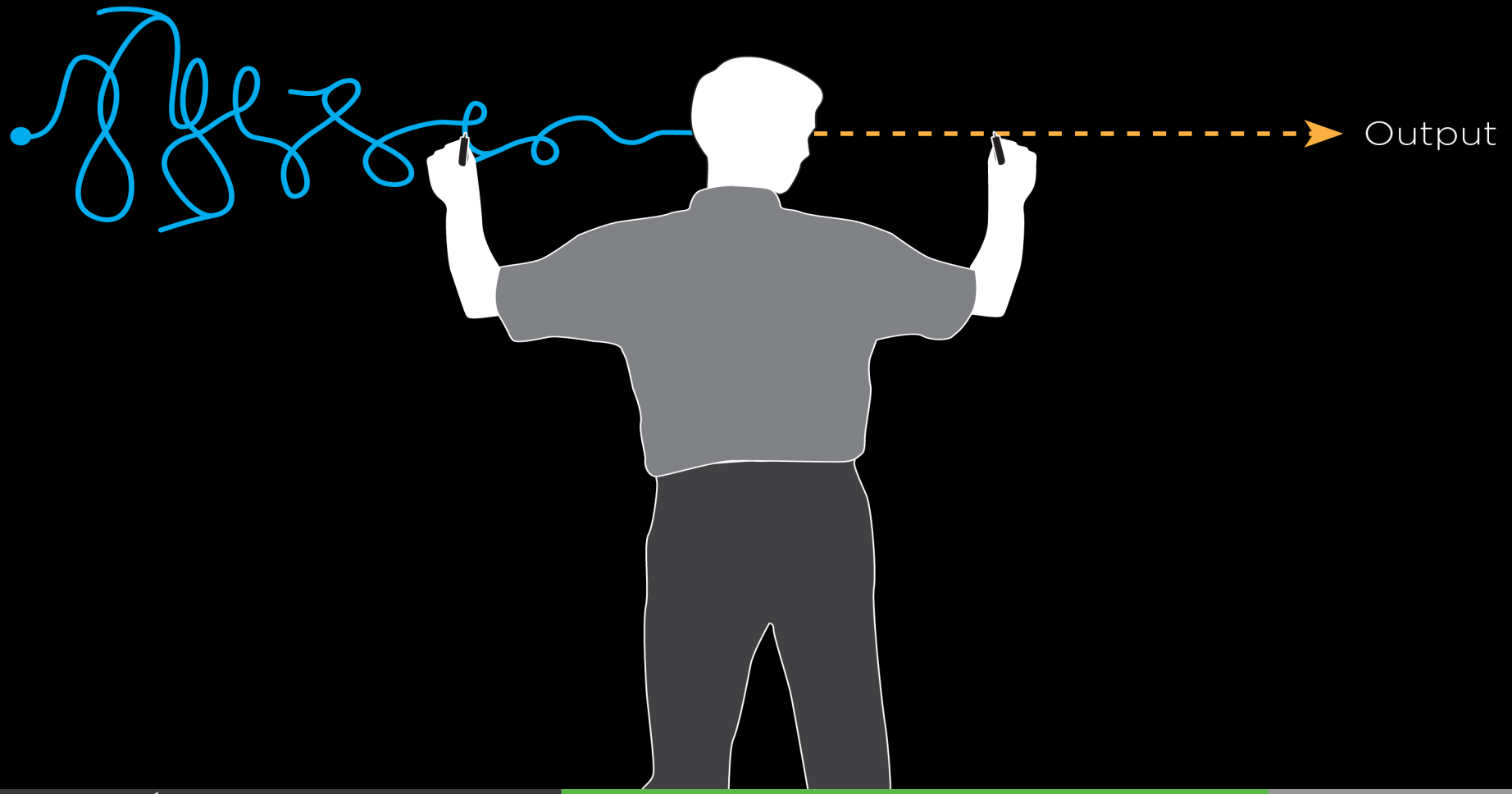
Organic milk is now a $322M Market with 126% Growth since 2000 – the rest of the industry is flat!

The Ambidextrous Organization



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Ambidextrous Organization: Four Networks Model

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	Sustaining Performance	Sustaining Innovation
Revenue Performance	**Performance Network** • The parent structure for operating P&Ls on proven business models • Focus on revenue performance • Health measured by financial operation ratios, resource allocation hurdles and performance metrics.	**Transformation Network** • Where disruptive business models go to be scaled to size • To win must catch next generation technology / science just as its entering its market growth phase. • This network can also redesign the operating model to one or more businesses in the Performance Network to lessen the attack of external disruptors.
Enabling Investment	**Productivity Network** • Home of enabling investments in shared services, all manages as cost centers – IT, HR, Legal, finance, and administration, etc. • Any function not accountable for revenue. • Focus is applying sustained innovation and continuous improvement to productivity enabling initiatives targeted at the performance network with the ROI in horizon one.	**Incubation Network** • The enabling host to fast growing offers in emerging capabilities and markets that are not producing revenue. • Horizon 3 – several years out. Incubation lab. Portfolio of innovations. • Has its own separate and distinct operating model.

Adaptive Ambidextrous Model

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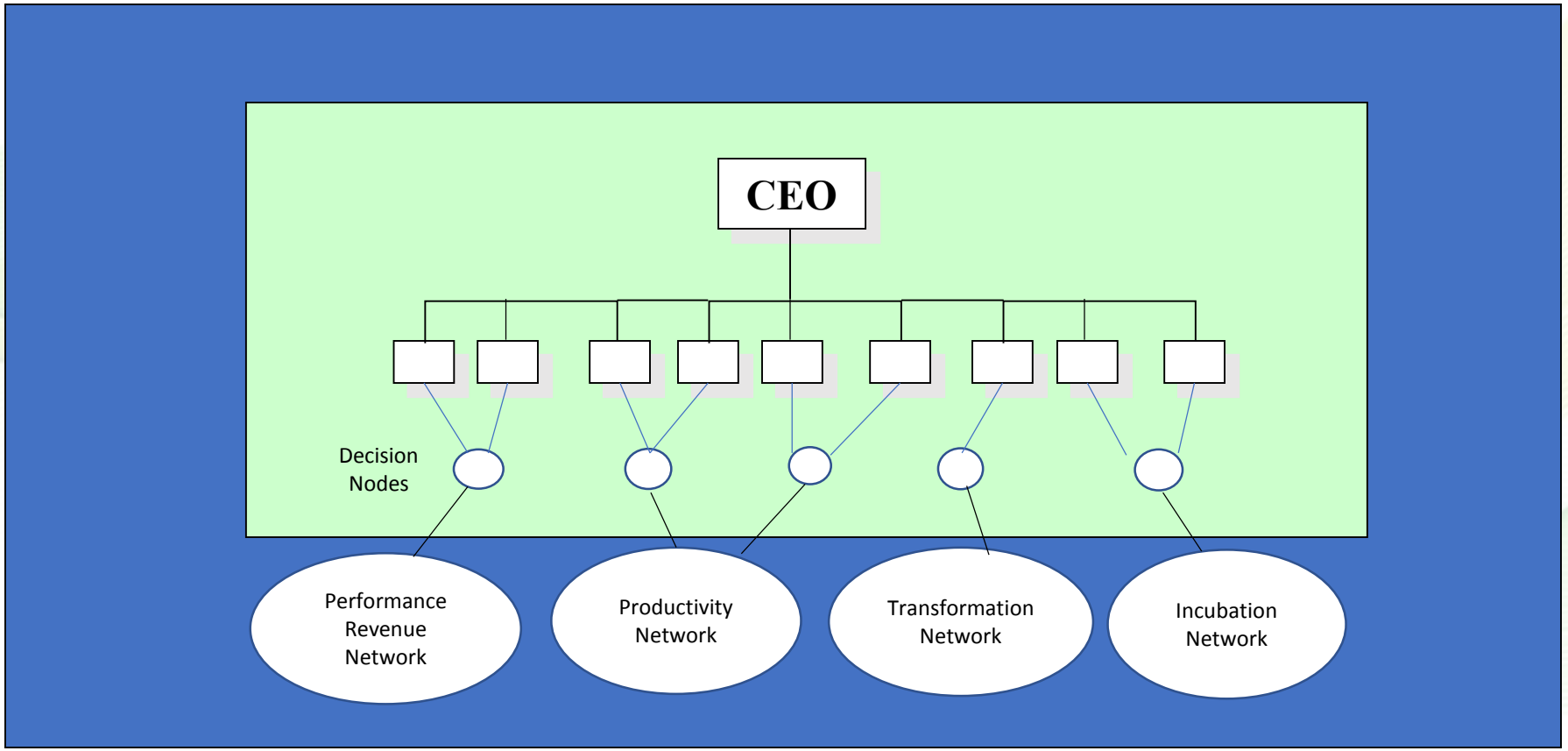
Option E - Adaptive Ambidextrous Model



Strengths	• Designed for simplicity and speed of decision making (decision nodes), Full executive team membership in meetings, engage implementers in design process to speed decision making, lower risk, test and learn, and fast scale. Focus on performance and allocation of resources in both Revenue and Innovation.
Weaknesses	• Non-hierarchical way of working.

Ambidextrous Network Ecosystem

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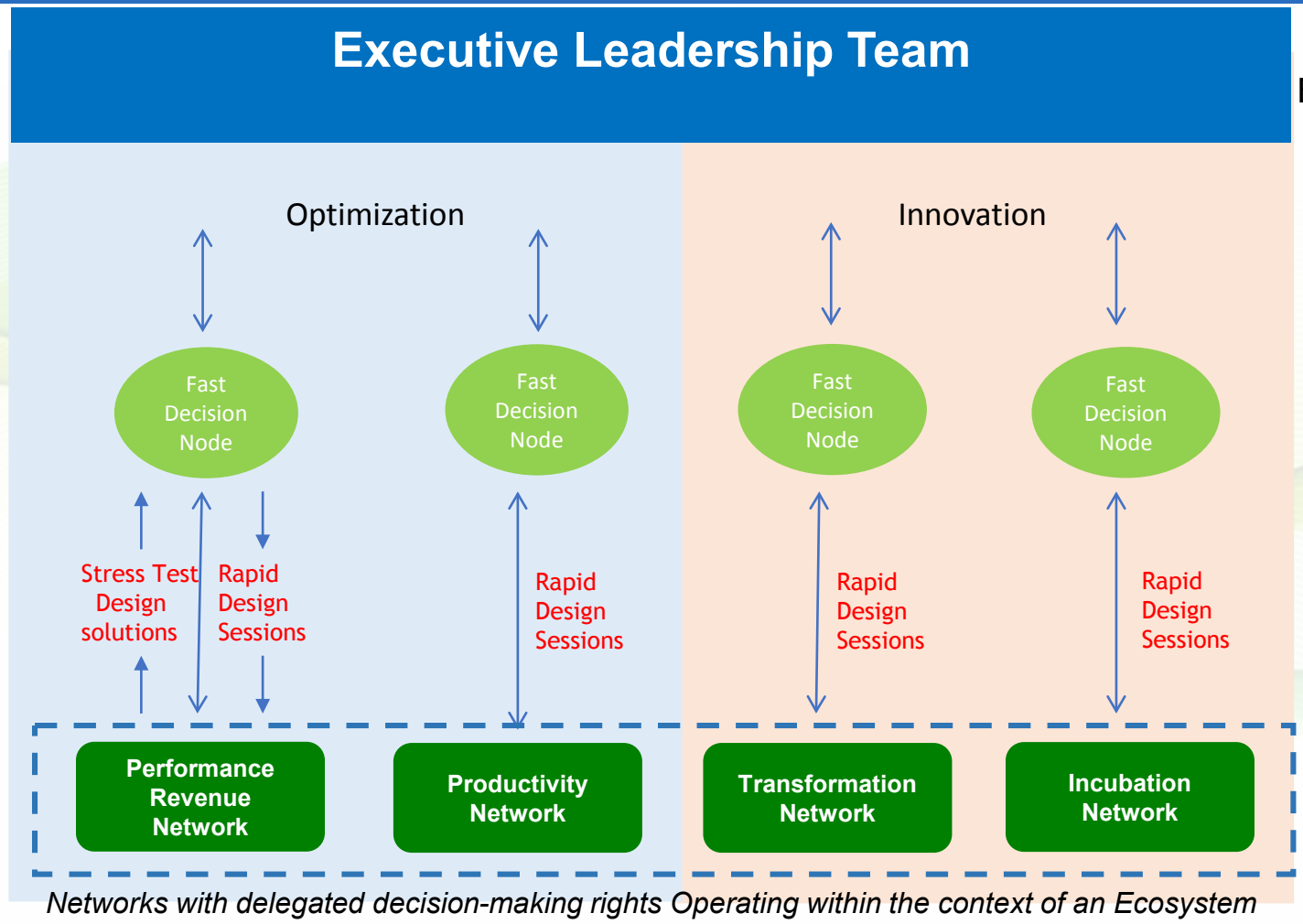


Networks with delegated decision-making rights Operating within the context of an Ecosystem

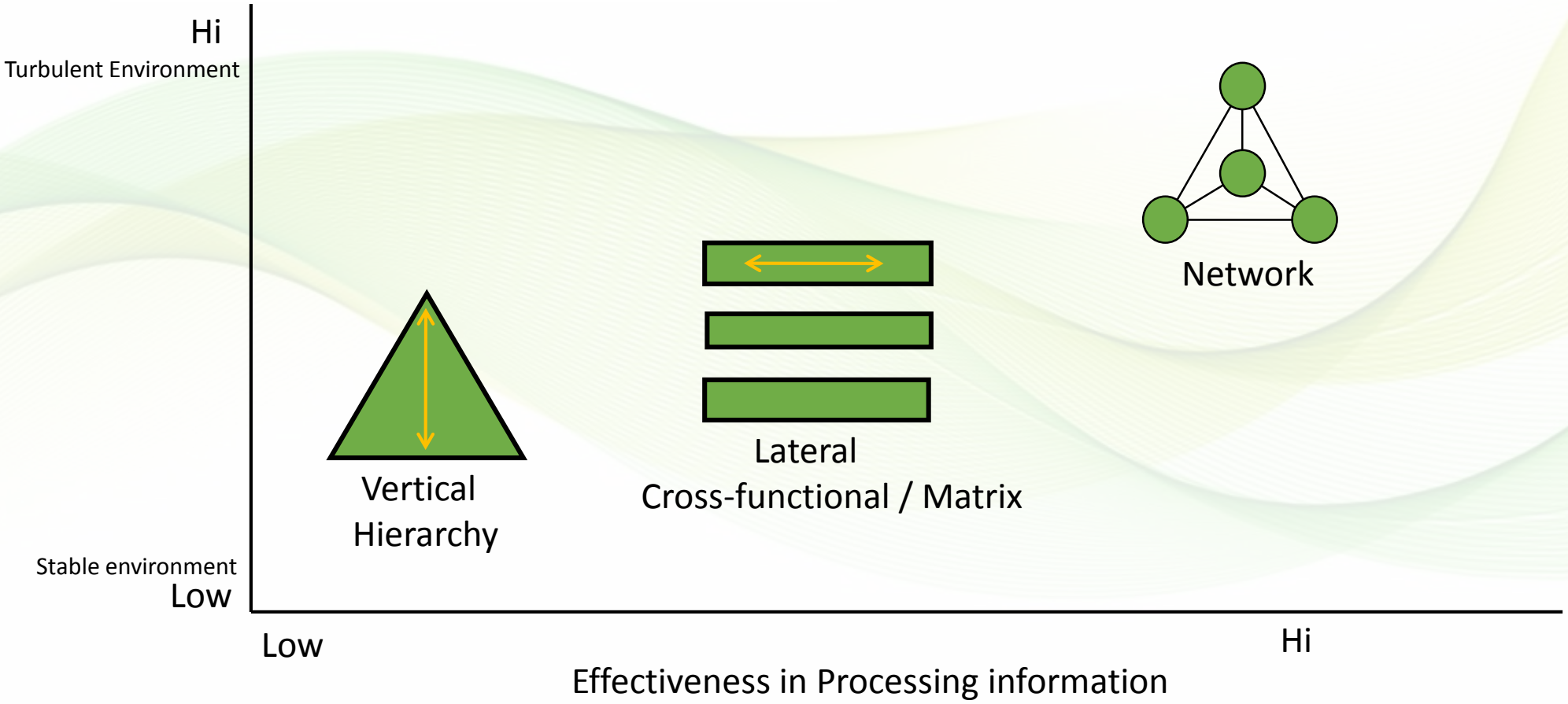
Executive Team Members

Decision nodes
Of 2-3 Executives
(RACI configuration)

Reconfigurable Networks to generate solutions fast, prototype, test in market, and scale

Organization

Third Organizational shift where networks more effective processors of information



Key Elements of a Network Based Organization

Element	Function	Examples
People (Actors)	Perform work activity by self organizing and collaboration	Individual or teams in an organization Firms in a collaborative community
Networks (Commons)	Lateral structure where shared resources are made available to people to support their work	Shared knowledge Shared data bases Shared situational awareness
Tools (Protocols, Processes, and Infrastructures)	Infrastructures connect people with one another Protocols guide behavior Processes that combine to create an agile organization	Software apps that announce projects as well as availability and expertise of people Shared norms and values concerning how to behave Intra-Inter organization collaboration


Adaptive
Work Systems
Networks and Teams

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Fundamentally, an adaptive work system is:

- An organizational capability – networks as production systems
- A design process that mobilizes the right people to work on the right problems and opportunities at the right time
- A superior way to allocate and utilize resources to achieve defined outcomes that add value for patients, consumers, employees and the enterprise
- A real time mechanism for reducing risk in all applications, including product/process innovation and strategy or program execution
- Faster in achieving desired results than linear, traditional contemporary disciplines e.g. program/ project management

Adaptive Work System

Performance is driven by five business objectives

1. Continuous innovation
2. Strategic and organizational adaptability
3. Socio-technical optimization
4. Improved time to value
5. Reliable results – constantly adapting to meet a goal (on-time/ quality)

The Agility Routines

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STRATEGIZING 

How top management establishes an aspirational purpose, develops a widely-shared strategy, and manages the climate for execution

PERCEIVING 

How the organization continuously monitors and communicates environmental perceptions to decision makers for interpretation and response

TESTING 

How the organization sets up, runs, and learns from experiments

IMPLEMENTING 

How the organization maintains its ability and capacity to implement continuous improvement (efficiency) and radical/discontinuous innovation

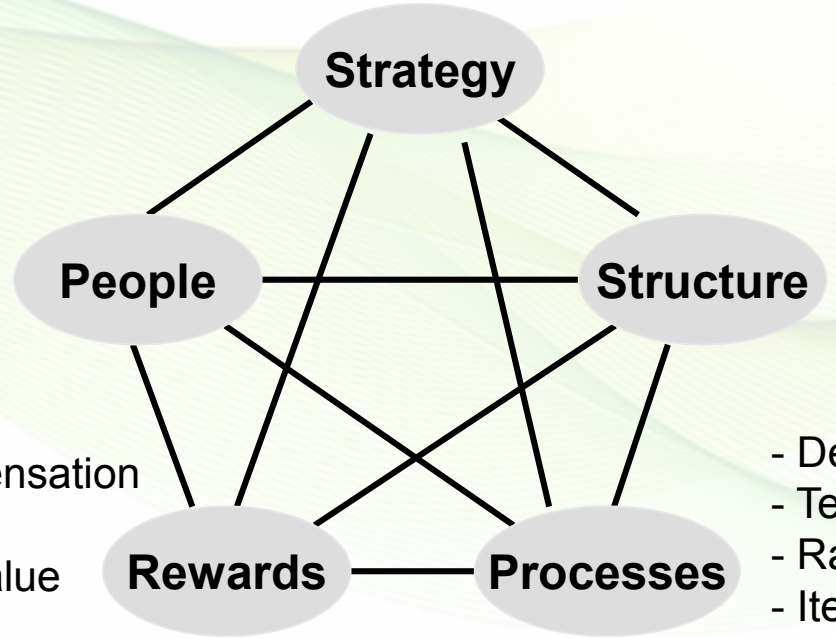
Star Model™ Framework

Adaptive Work System – Organizational Design View

The Agility and Speed Star Model

- Agility, flexibility, speed, and re-configurability

- Stakeholders
- Communities
- Network Leader
- New design skills
- Collaborative culture



- Ambidextrous Structure
  - Network (foreground)
  - Structure (background)
- Adaptive work system
  - Network clusters / nodes
  - Self organizing teams

- Customized compensation
- Bonus
- Career – market value
- Recognition
- Metrics

- Decision Accelerator
- Technology enablers/system
- Rapid prototyping
- Iteration planning and delivery
- Self-Organization
- Re-configuration
- Optimization

Organization Framework

Adaptive Work System – Functional View

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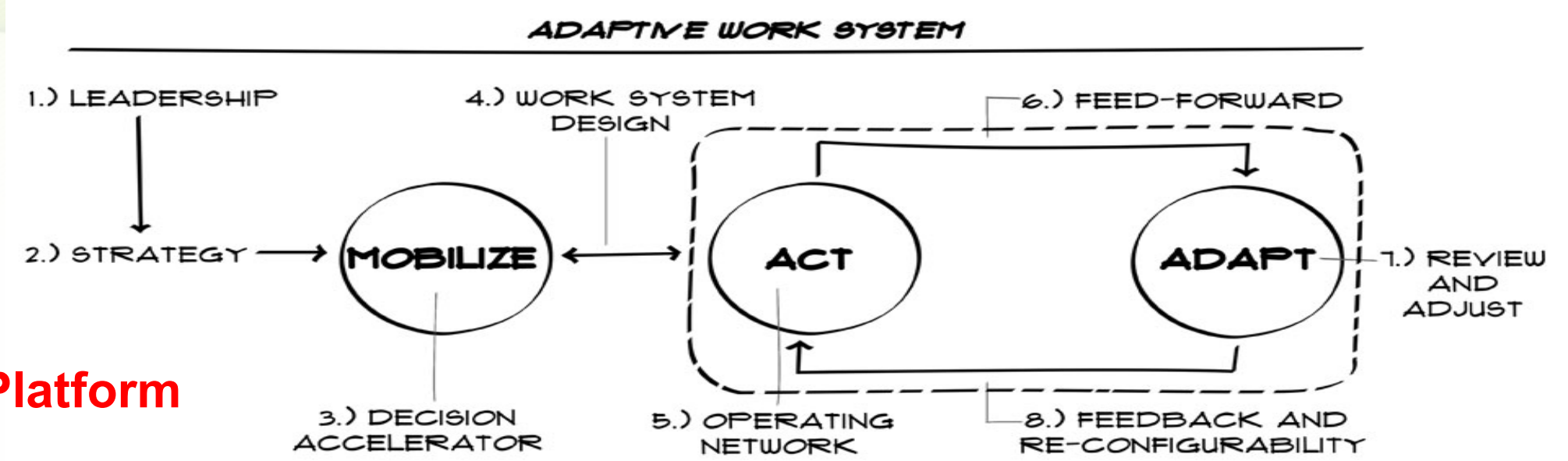
Applications
(work-system Design)

- Biz Model Design
- Product Design
- Service Design
- Experience Design
- STS - Work Design
- Transform Design
- Org Design

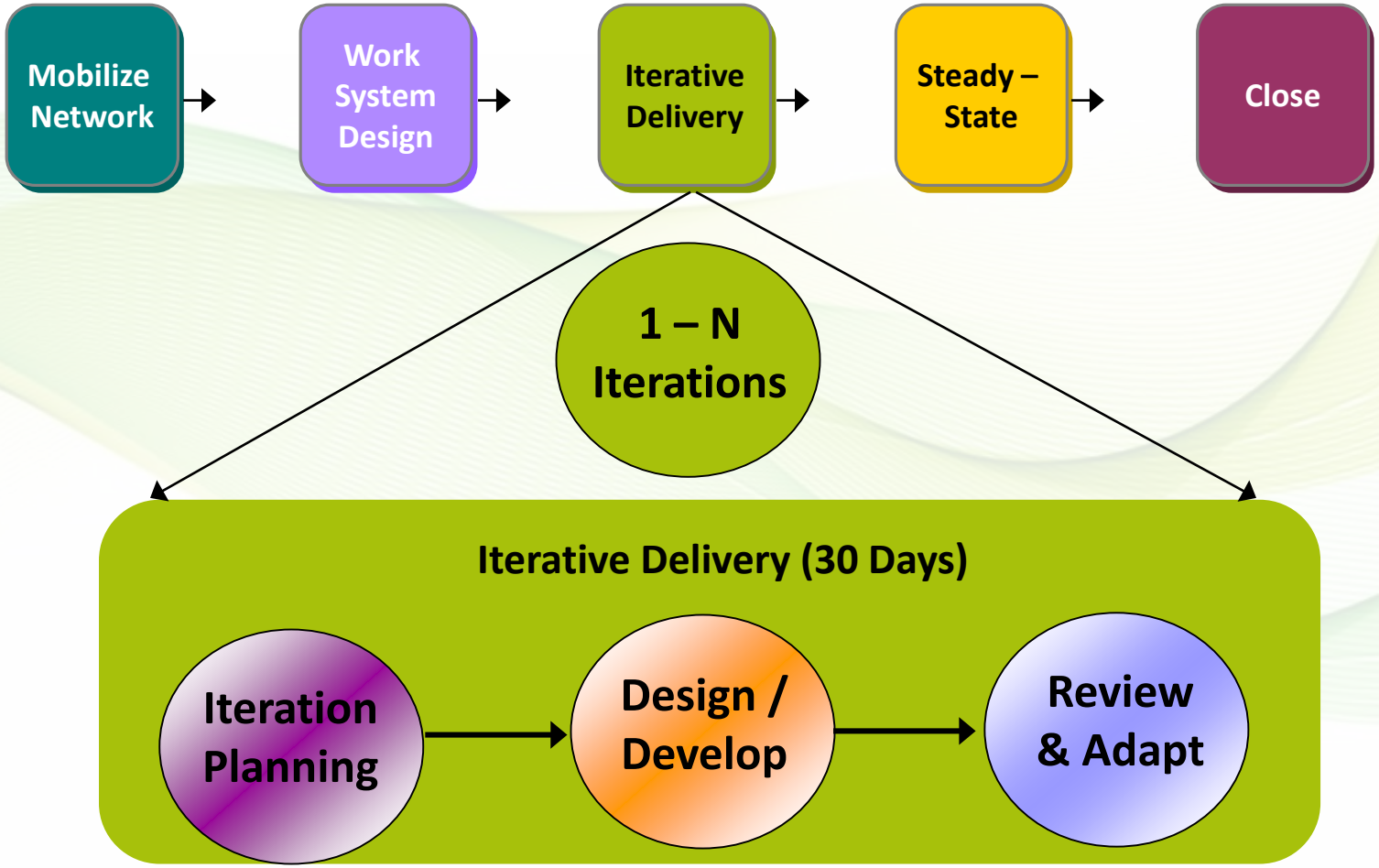
Design library that drives modular organization design

Platform



Delivery Framework

Rapid iteration, re-configurability, and delivering value



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Why do we call this new emerging organization design socio-technical systems design?

- Because digital technology enables work to be designed as a collections of "high performance work systems, and each work system increases it performance through socio-technical joint optimization

Socio-technical Systems Design: Core Ideas

If we design organizations to be effective in both human and economic terms, then:

- The social and technical systems must fit together so that they compliment each other
- This fit must be the key consideration guiding organizational and technological choice
- Organization effectiveness is achieved by joint optimization, not by maximizing the performance of one at the expense of the other
- Quality of work life is an explicit design criterion

From Traditional to Digital STS

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Dimension	From Traditional STS	To New STS
Era and time	Industrial and Computer 1950 - 2010	Digital Era 2011 – current - future
Technology	Mechanical and computer	Digital, machine leaning /AI
What leads to high performance	Social and technology optimization and fit. Absorption of uncertainty.	Social, Technical (work processes), technology (digital and electro-mechanical), and information optimization and fit. Agility in face of uncertainty and variation.
Unit of analysis for design	Work units	Ecosystem
Technical system	Internal focus, Linear, Routine, Production/office processes	Internal and external focus, Non-linear, uncertain, e.g., Customer user Journey
Social system	Work units and management	Ecosystem / network
Work system	Work Units –Jobs, roles, Teams, and workflow regulation. Interpersonal deliberations and iterations.	Operating Model – Coordination and integration by digital system and smart teams.
Cybernetic system	Self-regulation	Artificial intelligence, Decision Criteria built into digital system, Continuous learning system
Approach to design	Design Project, Implementation , Assessment and Iteration	Build – measure – learn.

Technologies		Impact on Work		Implications for Joint Optimization
Core Technologies	• Nano-technologies • Robotics • Blockchain • Bio-tech • Autonomous vehicles • Machine learning • Data analytics	**PROS**	• Efficiency • Efficacy • Cost-reduction • Speed • Convenience • Safety/ security	• Design work for humans that allows them to use their creativity to advance technology • Create work processes that bring the appropriate expertise into innovation deliberations • Also will require roles for those who maintain and upgrade technology • Design thinking paradigm to accelerate learning • Enhance interaction among VCs, strart-ups, knowledge centers
		Cons	• Job displacement • Machine control • Ethical challenges	
Collaboration Technologies	• Virtual meetings • Document sharing • Networking platforms	**PROS**	• Broader engagement • Reduced travel • Enhanced data capture	• Ecosystem design amid constant change • Overload produces deliberation variances; monitor network health • Maximize ease of access to expertise anywhere, anytime
		Cons	• Collaboration overload • Less time to think/ respond	
Enhancement Technologies	• AI • Quantum computing • VR	**PROS**	• Augmented capabilities • New possibilities • Faster learning	• A new form of R&D that needs to be able to influence how products are designed and the system operates • Amplify speed, range and stickiness of human experiences
		Cons	• Embedded bias • Ethical challenges	

Design for Joint Optimization

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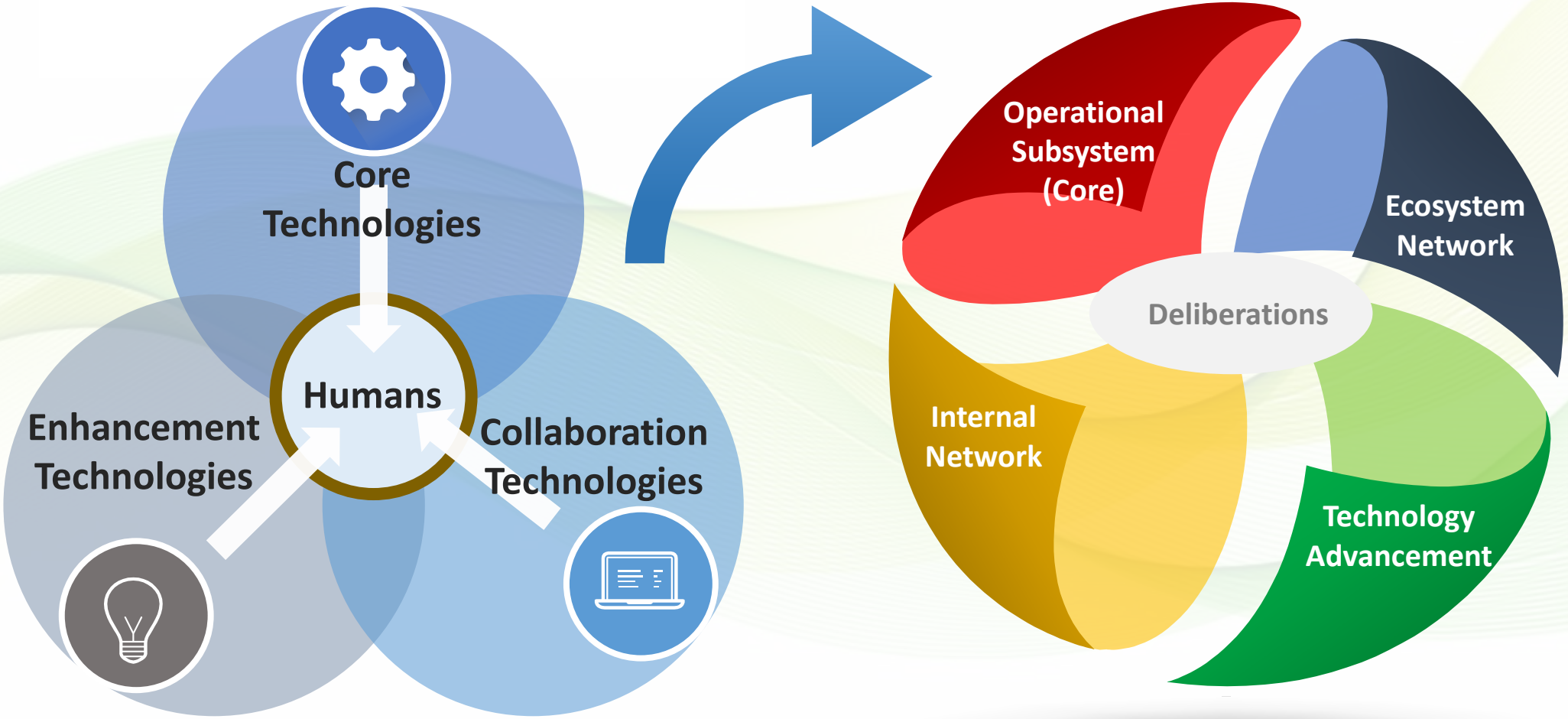

Advanced Technology Joint Optimization

Design Element	Technical		Social	
Operational Subsystem	• Efficacy • Reliability • Efficiency • Self-regulation • Mass-customization	• Costs • Agility • Minimum downtime • Minimal human monitoring	• Real-time access to deep expertise • Creative problem solving • Positive culture • Learning/ mastery	• Variance control capability • Influence over flexible work arrangements • Shared rewards
Ecosystem Network	• Searchable • Rich communication • Responsive • Breadth & depth	• Open edges, stable core • Interconnectivity	• Optimal network roles • High commitment • Meaningful rewards • Buy-in	• Efficacious composition • Effective governance • Positive relationships
Internal Network	• Searchable • Rich communication • Responsive • Interconnectivity	• Immediate access to direct or brokered expertise	• Optimal network roles • High commitment • Shared vision/ rewards • Teamwork • No silos or holes	• Overload avoidance • Effective governance • Positive relationships • Talent fits work
Technology Advancement	• Access to leading edge thinking • Design thinking • Open innovation	• Sufficient resources • Critical mass	• Connected to governance • Openness to new ideas • Designed deliberations	• Measured urgency • Critical mass • Teamwork • Designed Network

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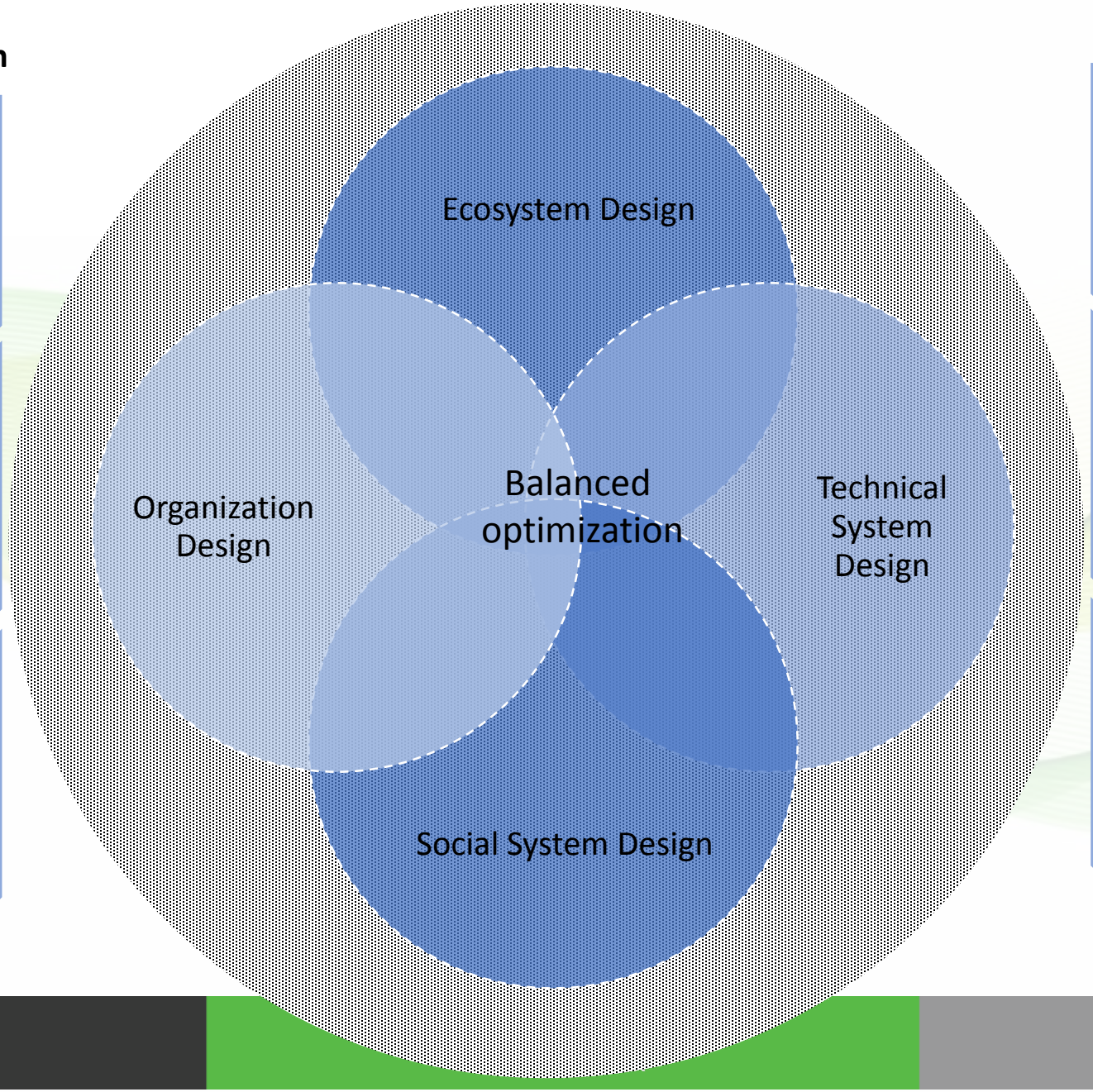
Levels of Design

Strategic Design
- Purpose
- Governance
- Ecosystem
- Organization

Operating System
- Technology
- Social system

Work
- Projects
- Expertise
- Processes



Outcomes

Societal

Organizational

Individual

Adaptive Governance

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Interdependent Projects

Interdependent project braids

Core

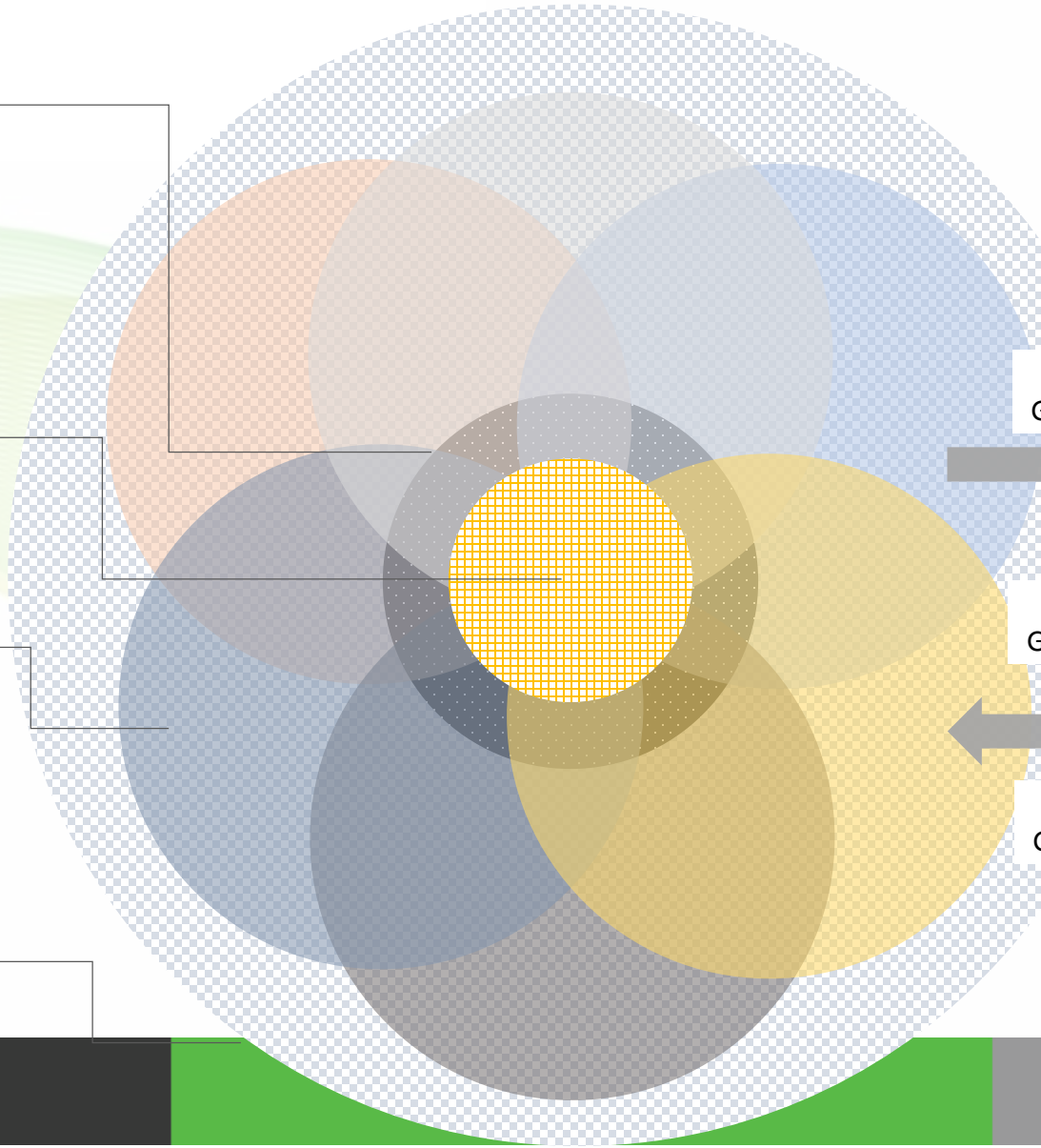
Process braids

Units/ Specializations

Independent project braids

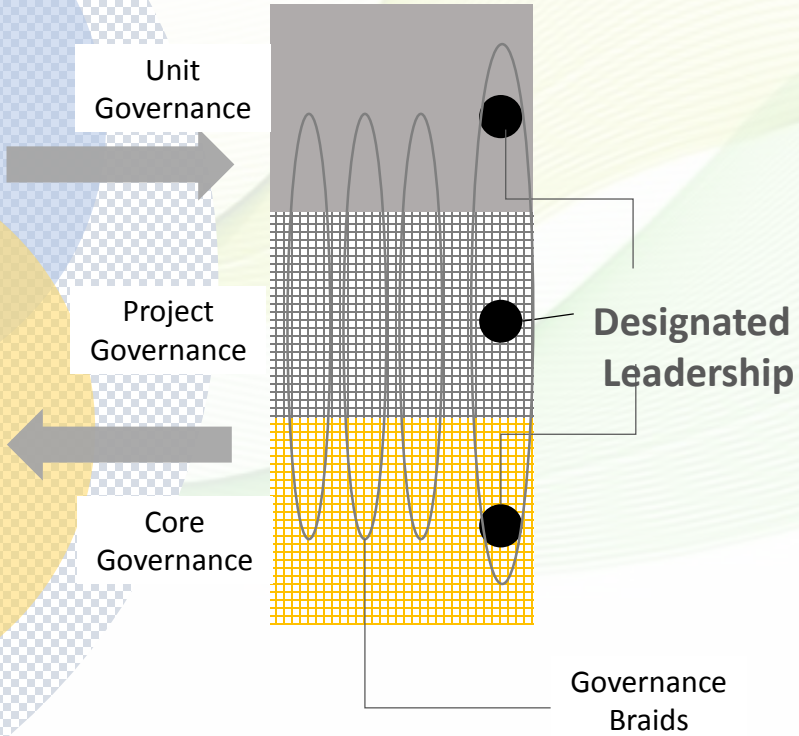
Ecosystem

Access braids



Governance

Braided governance networks designed for system-level direction and coordination



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About Satellite Healthcare

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- Founded by Norman Coplon, MD in 1973
- Headquartered in San Jose, CA with 80 locations across 6 states providing kidney dialysis to over 7800 patients
- $200 million in revenue with over 2000 employees
- Approximately 20% of patients in home dialysis; over 50% returning to Centers within 3 months
- Home and Center Dialysis service line alignment and eventual integration

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Facebook under fire

Its Menlo Park deal isn't convincing foes concerned with housing issues

NATHAN DONATO-WEINSTEIN, 6

TRANSFORMING HEALTHCARE IN THE HOME

A Silicon Valley company gathered experts and patients such as Annette Madden to reimagine home therapy for a costly chronic disease. Can they make a meaningful difference?

BY LEIA PARKER · PAGES 4-5

VICKI THOMPSON

MUST KNOW

Salinas could sprout a new Silicon Valley

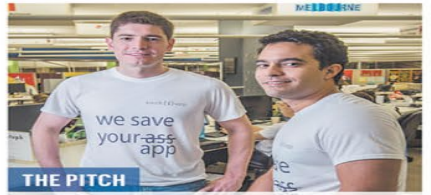
On the showcase at AgTech summit: Farm management apps, labor issues, plant innovations. BRYCE DRUZIN, 10

Facebook fails to move diversity needle

The social media company's latest report blames a lack of qualified candidates. JENNIFER ELIAS, 10

SOCIAL CAPITAL

A SPACE TO PLAY, A PLACE TO LEARN 27



THE PITCH

THEY WANT TO CHANGE HOW COMPANIES MAKE APPS 11

TECHNOLOGY HUB

AR'S NEXT EVOLUTION?

VC Jason Krikorian is experiencing the Pokemon Go phenomenon firsthand, and he's fascinated by the possibilities it holds for augmented and virtual reality.

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THE LIST

Silicon Valley's largest employers 12-15

Software companies in the Bay Area 18-19

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Satellite Health: Case Overview

- Health Care Environment
- Satellite Health: Background and Context
- Goals of Reimagine Home

Goals for Reimagined Home

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- Reduce the dropout rate of dialysis patients on home care, while improving the customer experience and reducing costs
- Increase patient satisfaction
- Develop a digital application that supports deeper patient engagement and connection and better management of their condition
- Create a new industry standard for dialysis home care that enhances Satellite Healthcare's industry leadership and serves as a source of competitive differentiation and increased market share
- Increase home program EBITDA growth as a result of the new resources and tools
- Receive a positive ROI from the Reimagined Home initiative in 2018 and beyond

Digital Socio-Technical Design – Steps and Tools

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Steps	Tools
1. Entry	❑ Requirements for successful design effort (readiness checklist) ❑ System scan ❑ Business case (Biz model/value prop/SWAT / org diagnosis ❑ Vision / architecture – listing of functionality ❑ Data sheet ❑ Project structure / project community
2. Research	❑ Ethnographic analysis: observations and interviews ❑ Patient Journey Touchpoint analysis ❑ Ecosystem map ❑ Variance analysis and ideation ❑ Social system analysis: STAR Model
3. Design	❑ Large Group Design Lab – co-creation with ecosystem ❑ Variance control Table ❑ Technology team working technical solutions ❑ High level preliminary design solutions
4. Protype	❑ Build the digital platform and application ❑ Create /redesign roles and responsibilities ❑ Prepare three prototype sites / launch – test and adjust
5. Scale	❑ Fast scale Model

Ecosystem Design

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An ecosystem is the term given to a set of products, services, and people that function together in a symbiotic way. The word ecosystem comes from biology wherein it describes a network of interacting organisms and their physical environment. From a socio- technical standpoint an ecosystem is described as a network of people interacting with products or services. Designers need to determine ways in which ecosystems can act together in service of business goals. The ecosystem includes:

- Users/customers,
- the practices they perform,
- the information they use and share,
- the people with whom they interact,
- the services available to them,
- the digital devices they use, and
- the channels through which they communicate

Ecosystem Map

Ecosystem design, likewise, is in part the *inquiry* method used to analyze and understand ecosystems, both the problems they pose as well as the business opportunities they might present. Instead of focusing on a single product or service, however, designers who practice ecosystem design evaluate user /customer behavior at the intersection of various touch points. They ask:

- Who are our users?
- What practices do they perform?
- What information do they need? (and where do they seek it?)
- With whom do they interact?
- What services are available to them?
- What devices do they use?
- Through what channels do they communicate?

Mapping the ecosystem

Mapping the ecosystem is a sense making process that practically speaking, only requires time and permission to iterate. It boils down to five major activities:

1. Understanding users and their goals;
2. Mapping the activities (both known activities and “best guesses” as to the unknown activities) that users conduct in service of their goals;
3. Mapping the information, services, devices and channels that users employ in service of their activities;
4. Mapping the moments in which users perform their activities; and
5. Narrowing down the discrete set of moments (or “experiences”) upon which the design team might focus.

Digitally Enabled Ecosystems

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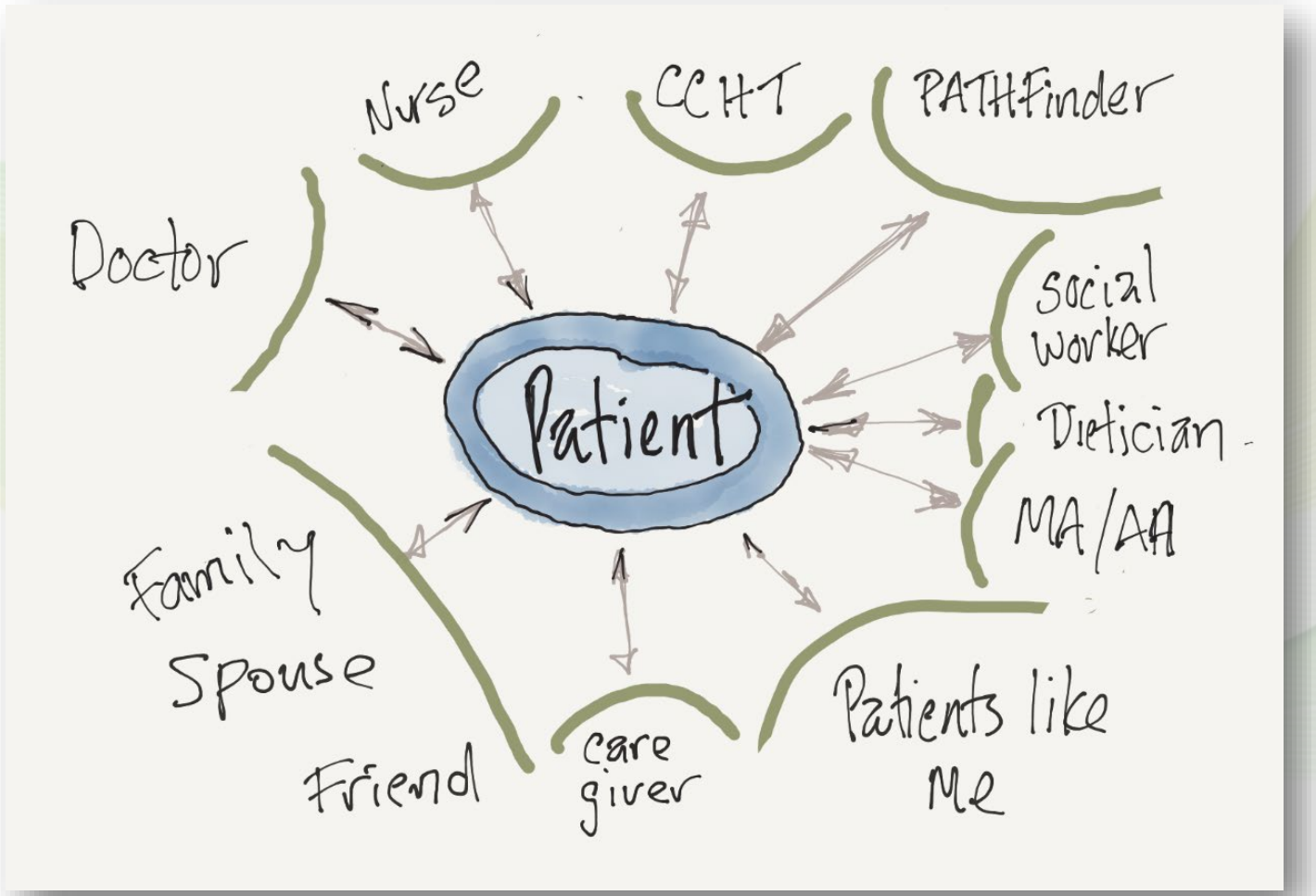

Patient Touchpoints Mapping

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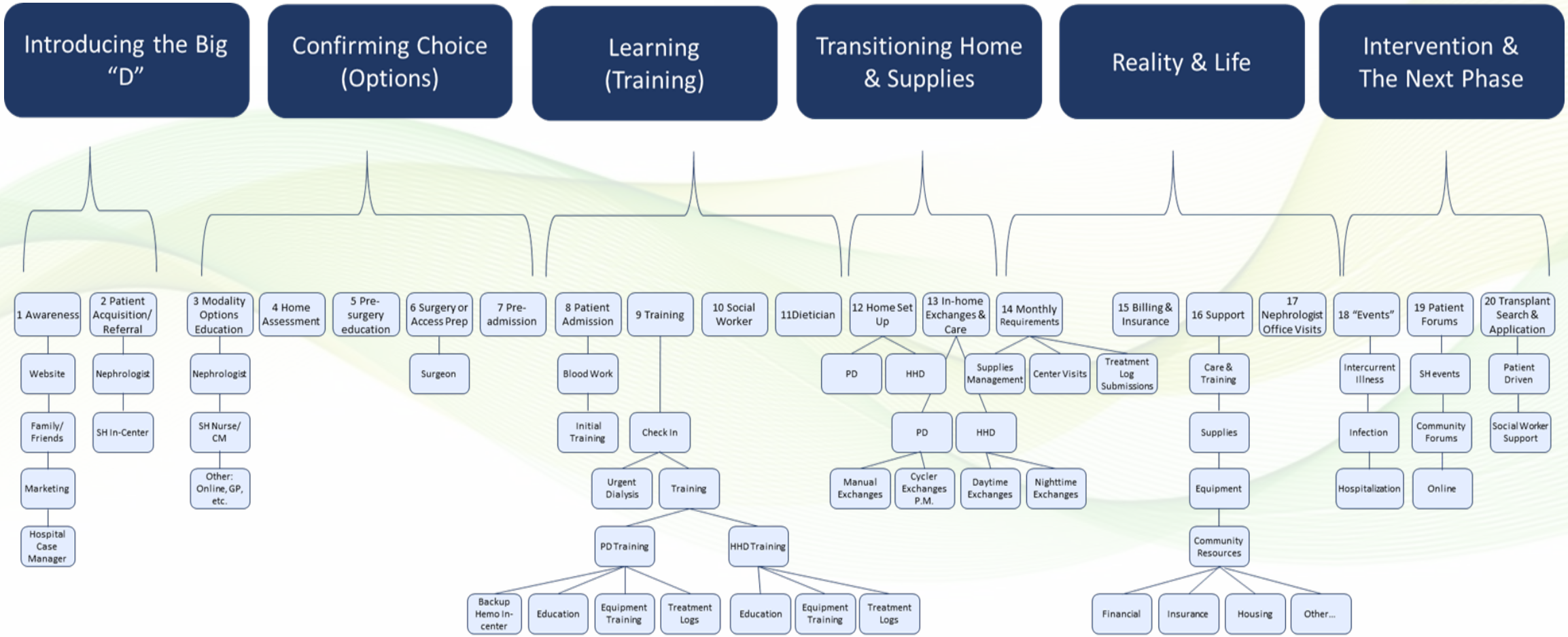

Technology

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Kara enters Dr. Patello's landing page

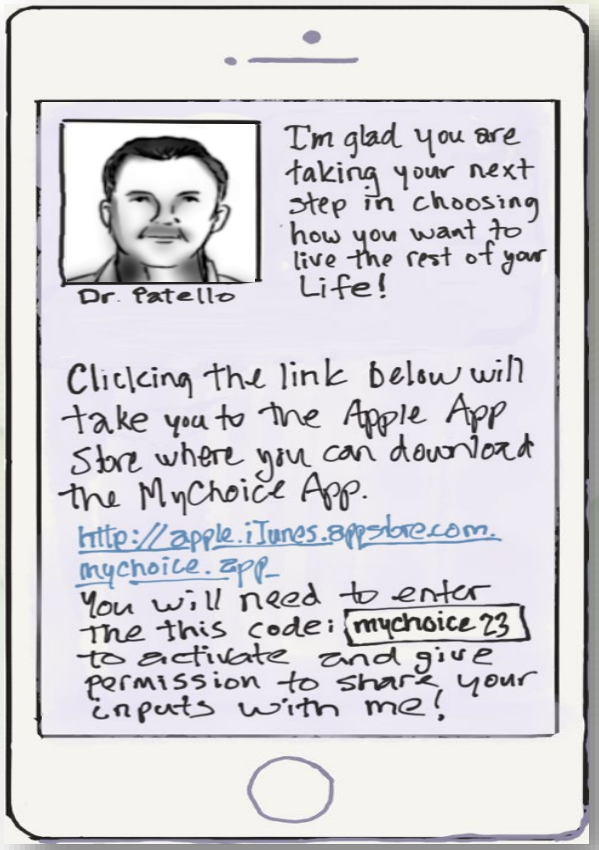
Patello's greeting is encouraging and positive about Kara's future life and health outcome.

Instructions for download are clear and uncomplicated … just click this link.

Reminder to type in 'my choice23' to associate Kara's app with Dr. Patello.

If Patello refers to several WB locations the number might be followed by a character ('f' for Fremont) ***mychoice 23f***

May need a message indicating the app is a great way for Dr. and Kara to stay connected ... as Dr. wants to follow Kara's progress every step of the way.



Aligning Home and Center Dialysis

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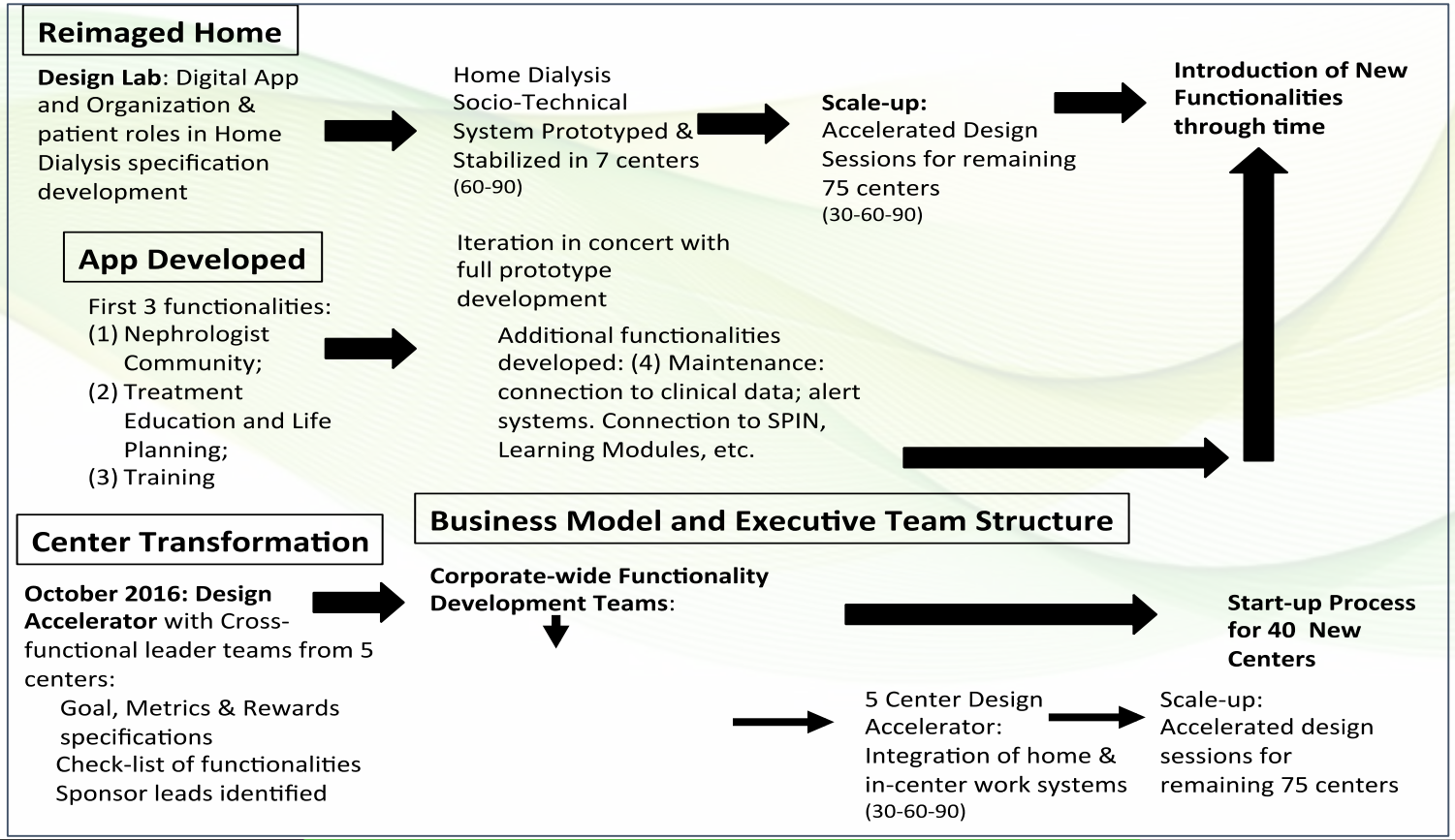
"Since patients will move between home and center dialysis, the optimized sociotechnical design must include the social and technical linkages to the centers."



StarLab Alliance, Inc.

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The STARLab Alliance is a non-profit learning consortium focused on creating next generation organization design and leadership models

The **Digital Organization Design STARLab** is a year-long learning experience that allows participants and subject matter experts to collectively explore and prototype practical and innovative responses to digitalization. STARLab Participants include 2-4 senior leaders from 6-10 companies, well-into the digital transition of their business models, who will partner with leadership and organization experts. The STARLab accelerates learning and creates organization design solutions that optimize the application of advanced technologies and human capital approaches to achieve agility and sustainable effectiveness.

STARLab Alliance Sponsoring Partners & Leadership

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