BUILDINGENERGY BOSTON

Why Do Startups Innovate Better than Design Firms, and What Can We Learn from Them?

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Northeast Sustainable Energy Association (NESEA)
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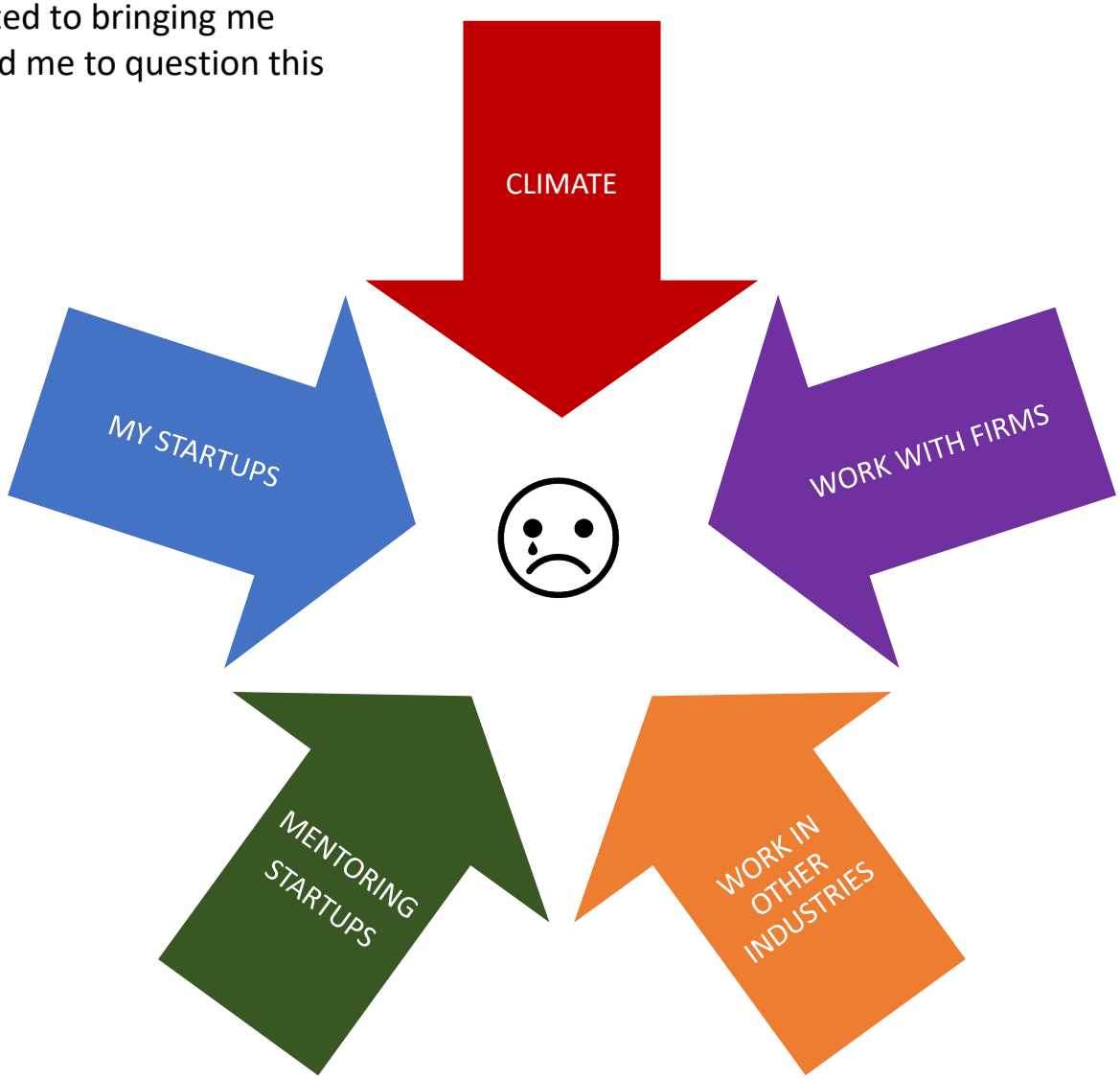
BECOMING AN AGILE INNOVATIVE ORGANIZATION

Barbra BatShalom BE21

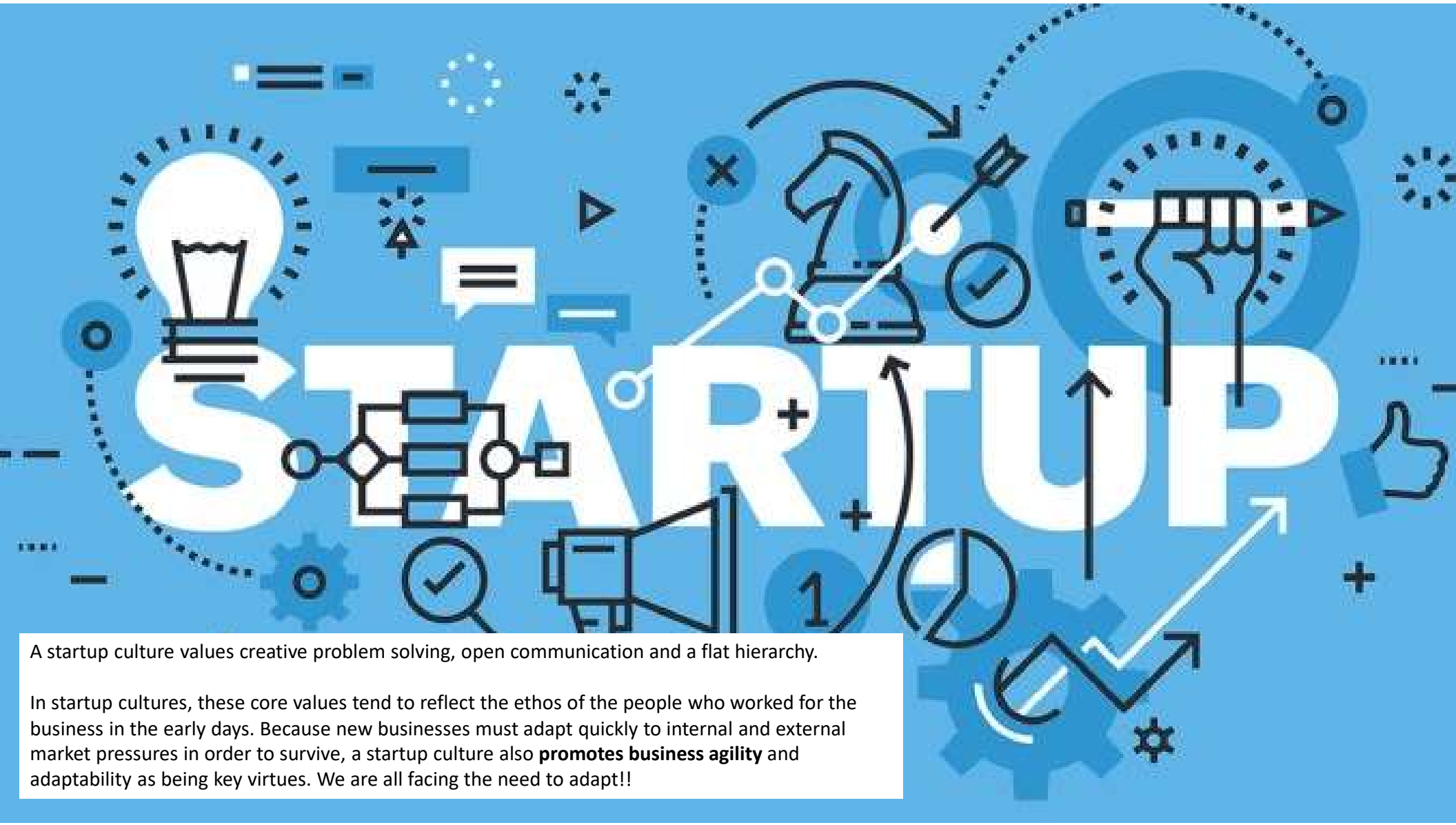
Link to murmuration video (with music!)
https://www.youtube.com/watch?v=YjDYE5CUb7Q


Passion
Ideas
EXCELLENCE
Innovation
Motivation

Things that have contributed to bringing me to this point and motivated me to question this paradigm!



When you hear “startup culture”, what defining characteristics do you think of?



A startup culture values creative problem solving, open communication and a flat hierarchy.

In startup cultures, these core values tend to reflect the ethos of the people who worked for the business in the early days. Because new businesses must adapt quickly to internal and external market pressures in order to survive, a startup culture also **promotes business agility** and adaptability as being key virtues. We are all facing the need to adapt!!

Part 1

1. DIG INTO WHAT AGILE IS

2. DEFINE 4 CORE AREAS AND COMPARE

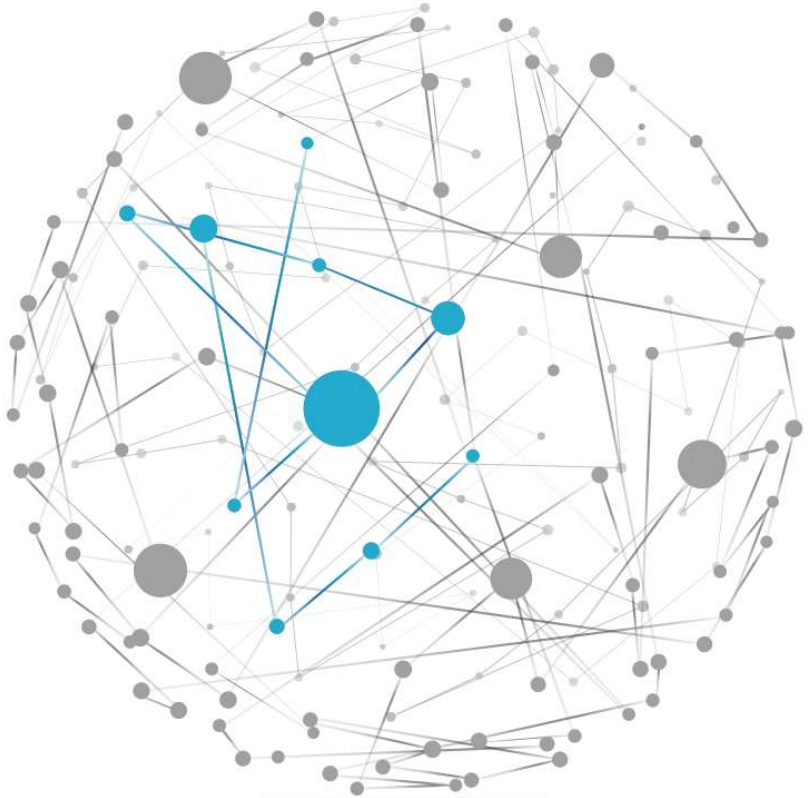
Part 2

3. APPLY DISCUSSION IN AN EXERCISE

4. DEBRIEF

UPGRADE TO AN Agile OPERATING SYSTEM

to accelerate growth while minimizing risk



McKinsey&Company have tons of articles online (free, but need to create a log in)

GUIDING PRINCIPLES OF THE AGILE MANIFESTO

1. Top priority: satisfy customer thru early and continuous delivery of value
2. Welcome changing requirements, even late in process – Agile harnesses change for competitive advantage
3. Deliver (working software) frequently, test and adapt
4. Team members with different expertise collaboratively
5. Build projects around motivated individuals and ensure they have the neccessary support, trust and stability
6. The most efficient and effective method of conveying information immediately (!) within a team is face to face conversation
7. Outcomes (working software) are the primary measure of progress – is your "work product" meeting intention at every stage?
8. Agile processes promote sustainable workflow "design" to avoid burnout – ability to maintain a constant pace indefinitely
9. Continuous attention to technical excellence & good design enhances agility (scrum ensures proactive problem solving)
10. Simplicity – the art of maximizing the amount of work NOT DONE is essential – by timing collaboration, feedback loops as needed.
11. The best architectures, requirements, designs emerge from self-organizing teams – design autonomy into problem solving.
12. Team reflects on how to be more effective at regular intervals, tunes and adjusts behavior accordingly.

…and applies to (enlightened) corporations outside of our industry

THERE ARE 5 TRADEMARKS OF AGILE ORGANIZATIONS

Internally driven commitment for every project

Stable, empowered, QC and clear process role

Feedback Loops

People first, anytime feedback, soft skills

BIM, material research, spotty adoption

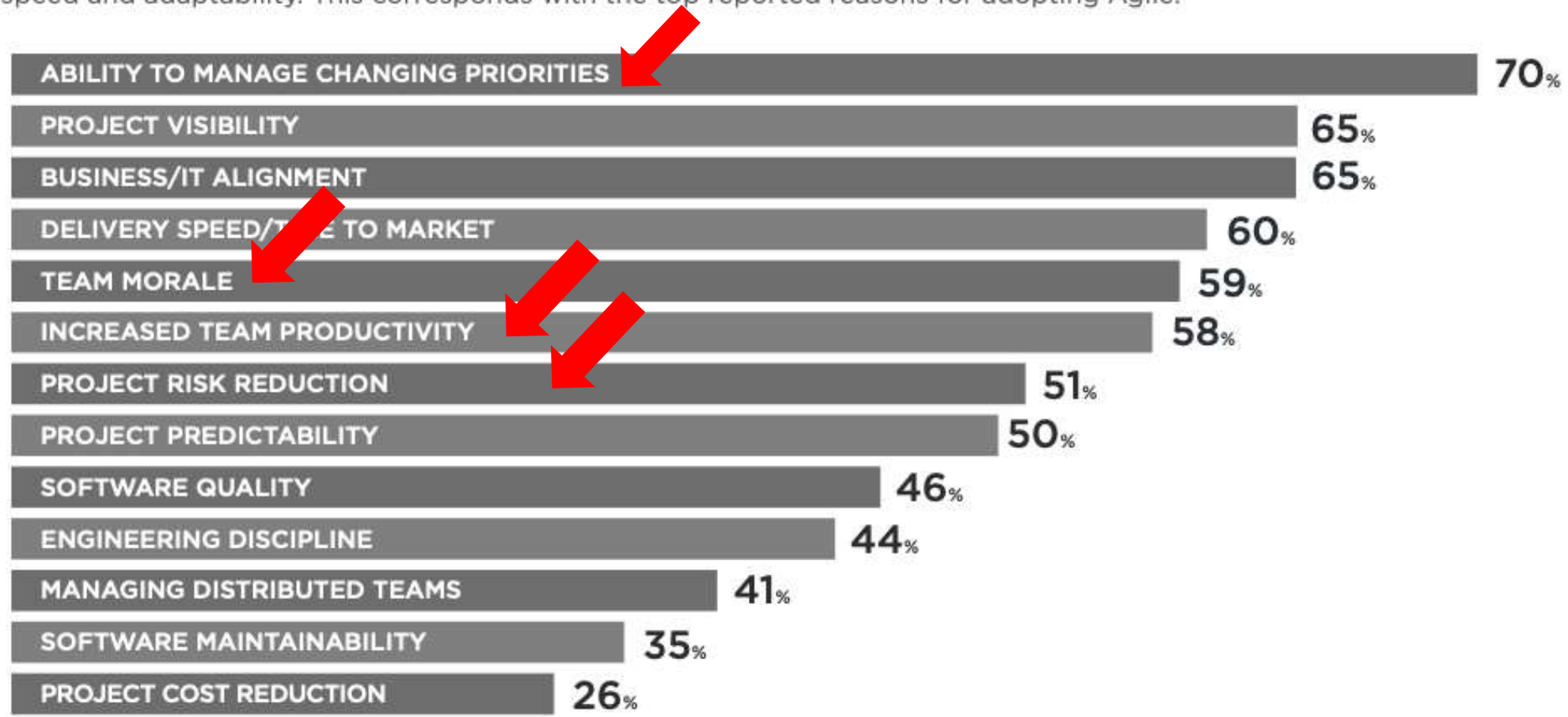
Trademark		Organizational agility practices[1]
STRATEGY	North Star embodied across the organization	▪ Shared purpose and vision ▪ Sensing and seizing opportunities ▪ Flexible resource allocation ▪ Actionable strategic guidance
STRUCTURE	Network of empowered teams	▪ Clear, flat structure ▪ Clear accountable roles ▪ Hands-on governance ▪ Robust communities of practice ▪ Active partnerships and eco-system ▪ Open physical and virtual environmen ▪ Fit-for-purpose accountable cells
PROCESS	Rapid decision and learning cycles	▪ Rapid iteration and experimentation ▪ Standardized ways of working ▪ Performance orientation ▪ Information transparency ▪ Continuous learning ▪ Action-oriented decision making
PEOPLE	Dynamic people model that ignites passion	▪ Cohesive community ▪ Shared and servant leadership ▪ Entrepreneurial drive ▪ Role mobility
TECHNOLOGY	Next generation enabling technology	▪ Evolving technology architecture, systems, and tools ▪ Next-generation technology development and delivery practices

OLD PARADIGM		AGILE APPROACH
People need to be directed and managed, otherwise they won't know what to do—and they'll just look out for themselves. There will be chaos.	→	When given clear responsibility and authority, people will be highly engaged, will take care of each other, will figure out ingenious solutions, and will deliver exceptional results.
To deliver the right outcome, the most senior and experienced individuals must define where we're going, the detailed plans needed to get there, and how to minimize risk along the way.	→	We live in a constantly evolving environment and cannot know exactly what the future holds. The best way to minimize risk and succeed is to embrace uncertainty and be the quickest and most productive in trying new things.
To achieve desired outcomes, leaders need to control and direct work by constantly specifying tasks and steering the work of employees.	→	Effective leaders empower employees to take full ownership, confident they will drive the organization toward fulfilling its purpose and vision.
Technology is a supporting capability that delivers specific services, platforms, or tools to the rest of the organization as defined by priorities, resourcing, and budget.	→	Technology is seamlessly integrated and core to every aspect of the organization as a means to unlock value and enable quick reactions to business and stakeholder needs.

BENEFITS OF AGILE

BENEFITS OF ADOPTING AGILE

We continue to see many benefits realized by companies adopting Agile. The theme of the top 5 reported benefits is speed and adaptability. This corresponds with the top reported reasons for adopting Agile.



Agile performance units excel most often at strategy and people-related practices, and they outperform all other units in stability and dynamism.

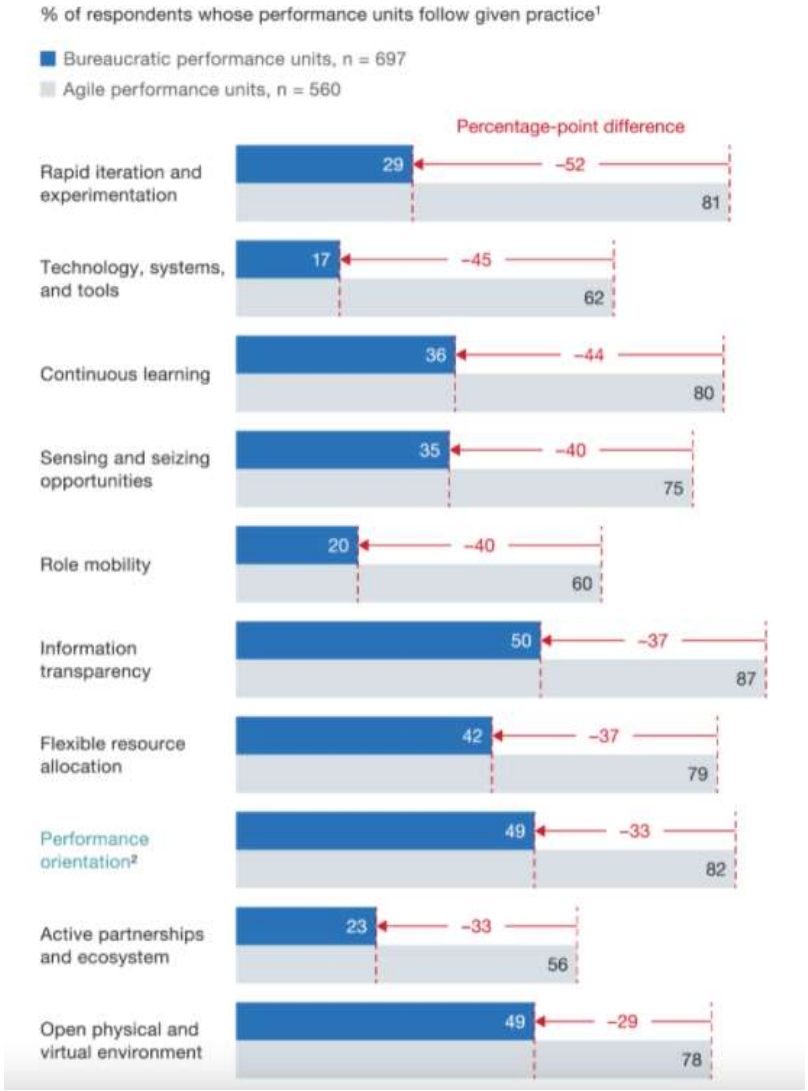
% of respondents whose performance units follow given practice[1]

- Agile performance units, n = 560
- All other performance units, n = 1,985

Type of practice

Strategy · Process · Structure · People · Technology

Compared with their agile counterparts, bureaucratic performance units are far behind on their dynamic practices.

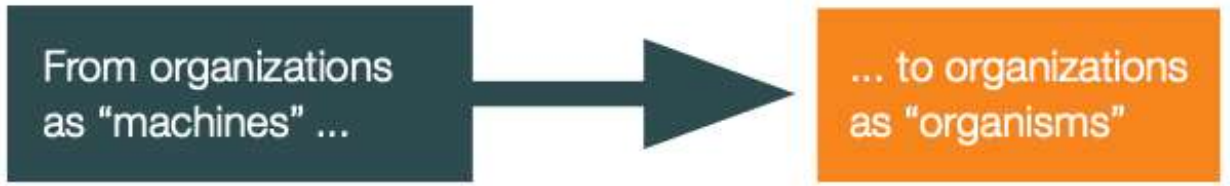


In bureaucratic units, respondents report room to improve how they execute certain stable practices.

McKinsey & Co.

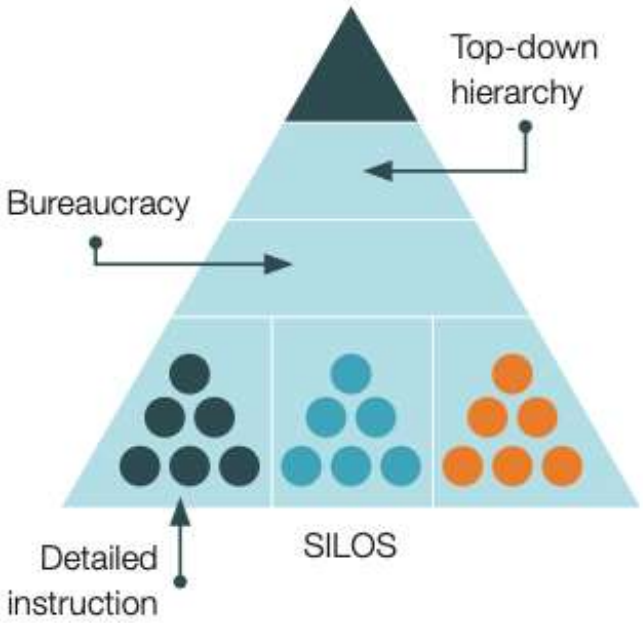
The Agile Organization is dawning as the new paradigm.

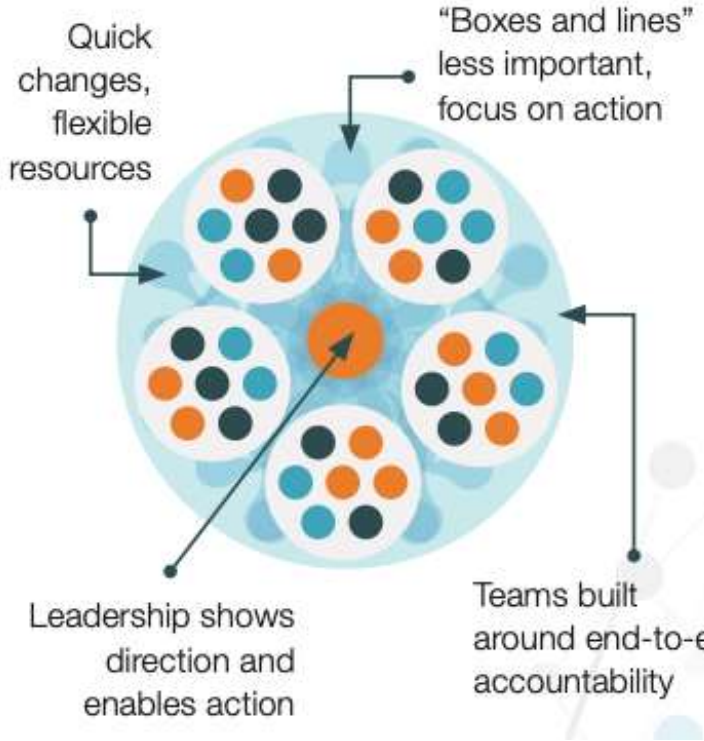
Rather than organization as “machine”, the agile organization is a living organism.



Organizations as living organisms

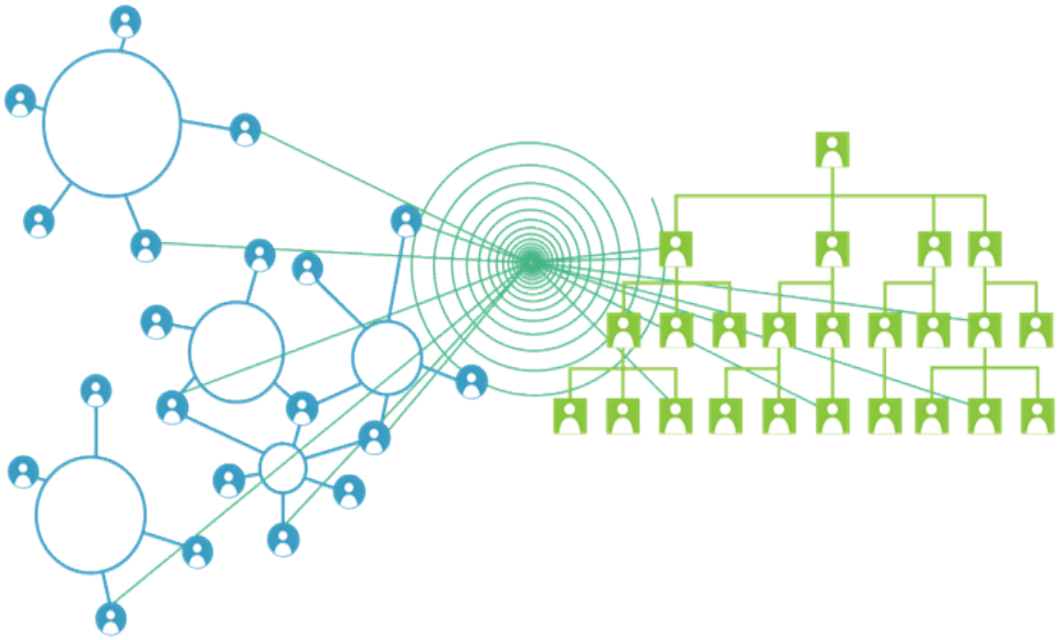
Like the cells in an organism, the basic building blocks of agile organizations are small fit-for-purpose performance cells. Compared with “machine models”, these performance cells have greater autonomy and accountability, are more multidisciplinary, are more quickly assembled (and dissolved), and are more clearly focused on specific value-creating activities and performance outcomes.





McKinsey Quarterly, Dec 2015, Mckinsey.com

REFLECTS “DUAL OPERATING SYSTEM” APPROACH TO CHANGE MANAGEMENT



ADAPTIVE OPERATING SYSTEM

Emergence / Innovation

PURPOSE

COMMAND & CONTROL OPERATING SYSTEM

Execution / Scale

AGILITY & THE SMARTPHONE: AN ANALOGY

The phone's fixed hardware platform and space for new apps mirrors the agile organization's stable backbone and dynamic capability to add, abandon, replace and update "apps".

Together, these allow the organization to respond quickly to market changes.

Jazz Improvisation!

LET'S DIG IN TO THREE "BUCKETS" OF ISSUES:

	STARTUPS/ENLIGHTENED CORPS	DESIGN & CONSTRUCTION FIRMS
PROCESS		
Problem finding	No jumping to solutions - KNOW that the client doesn't "see" the whole problem so focus on really understanding it first.	Haven't seen it happen yet.
Consistent goal setting	Absolutely set, revisited, tested - throughout	Larger firms #fail with consistency, many timid to push
Feedback loops throughout	Constant Feedback = quality decision making	Feedback is sporadic and value is lost
Use of resources (LEED/consultants)	Just-in-time resources deployed when/where needed	Use the wrong resources / wrong time – or underuse critical resources (MEP)
Roles: Scrum Master (process leader)	Roadmap + Scrum Master – job is *quality of process*	It's the luck of the draw – process is not qualitatively "designed" . NO scrum master at all (process person)
Collaboration Effectiveness	Collaboration Effectiveness is…*MEASURED*	We say we collaborate, but we don't (measure it)
Create Teams (not groups)	Attention is paid to quality of team (structure/culture/building trust)	Trust, psychological safety or mutual accountability – "We don't have time to do that stuff"….don't measure impact
Innovation	Innovation is built in as an expectation	Many firms are afraid of it – few build it in to biz ($)
Lessons Learned / continuous improvement	Lessons learned captured constantly and inform next cycle.	**We keep selling our past mistakes**. And get away with it. 2030 Firms are beginning to use DDx to learn.
Stability – all on same page	Teams are stable, share understanding of goals & process	Larger firms lack stability – people pulled on and off – clueless about history, goals, context – can't provide as much value

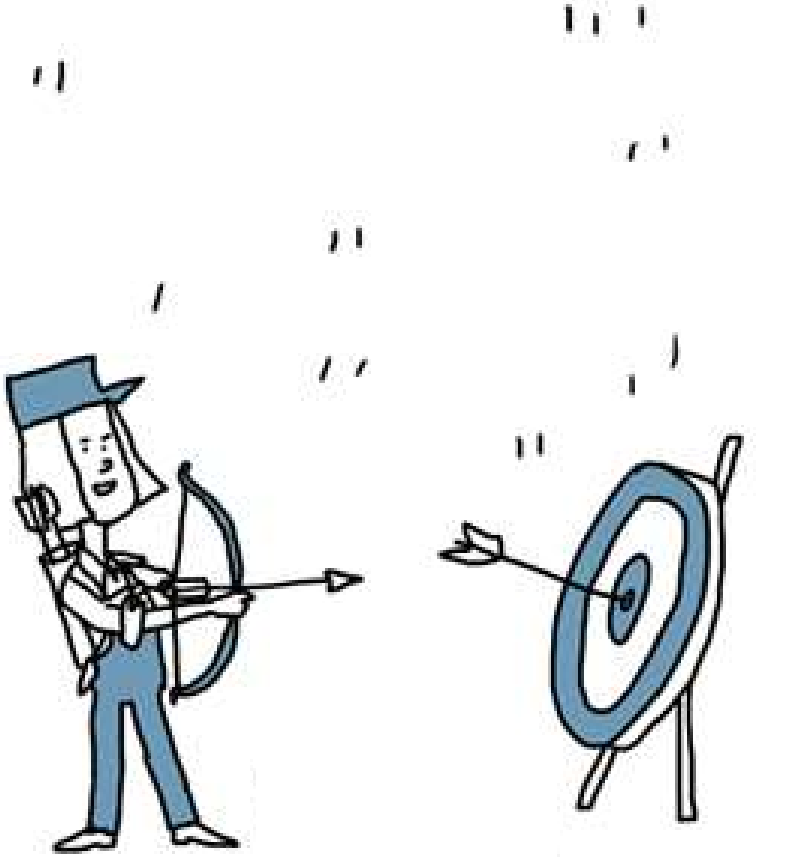
	STARTUPS/ENLIGHTENED CORPS	DESIGN & CONSTRUCTION FIRMS
MANAGEMENT		
Leadership (Scrum Master - process leader)	No - and disconnects between leader/execution teams "We always…" Vs. "We never…"	Not supported. Disconnects between leader/execution teams "We always…" Vs. "We never…"
Communication	"Anytime feedback", non- hierarchical overlay	Larger firms *#fail* with consistency, many timid to push
Change Management	Constant change is a recognized condition, embraced	Managing change = "can't waste time", blindspots
Metrics & KPIs	Know what to measure but create alternative feedback loops to capture what's outside the "lens". **Unnecessarily repeated work is not tolerated!!**	Narrow focuses. Invisible losses (measuring wrong things, not measuring some, like real hours spent). Repeat the same work unnecessarily all.the.time. ?!
Collaboration Effectiveness	Collaboration Effectiveness is…MEASURED	We say we collaborate, but we don't (measure it)
Knowledge Management	Attention is paid to quality of team (structure/culture/trust)	Trust, psychological safety or mutual accountability – nope
Accountability	Mutual accountability is mandatory, measured, and built into the 'design' process.	Many firms afraid of it – few build it into the business or management models. No way to know if required things are actually happening. $ account. undermined.
Structure, Team stability	Core structure exists, but adaptable and flexible – teams are stable and not randomly pillaged.	Rigid, unresponsive, no "dual operating system" to allow for proactive problem finding – silos pretend to be cross functioning teams.
Organizational Excellence	This is an explicit focus with people tasked to watch, listen and coordinate efforts to stay on track. "Two companies in one – one to serve client and one to be the best org possible". *Southwest/Starbucks – treat employees like clients and they will serve clients better.*	Not an explicit focus. No people dedicated to track this (as part of their job). "If we are making enough of a profit, all is good". If clients are happy all is good (but clueless that clients aren't happy….)

	STARTUPS/ENLIGHTENED CORPS	DESIGN & CONSTRUCTION FIRMS
CULTURE		
Values driven	Stated values manifest in concrete actions, management and treatment of staff.	Disconnect between espoused values and actions. Leaders who act counter to values are not dealt with. Values realized only when client asks for them.
Staff as most valued asset	Act like it's true (because it is!). In addition to free food, ping pong and silly stuff – people are empowered, asked for "anytime feedback" and no one is too junior to have a good idea or pre-empt a problem they detect.	Many firms claim this, but ZERO manifest it in how they manage the work, allocate staff and resources or empower staff. "We can't help it – it's our clients, they don't pay enough/change minds, etc" IF YOU WANTED IT TO HAPPEN you could make it happen. Some do…
Internally driven best practices	Not even a question. We set the standard so we can deliver the best to our customers. **NO FEAR**.	"*But our clients aren't asking for it…*" **TIMID**
"Challenge the process" and innovate	Culture of constantly challenging the process with intention of optimizing it all the time.	Keep doing the same thing, expecting a different result. Shorter schedules, less $ but we don't change…
Collaboration as a value	Collaboration internally, sharing knowledge etc. IT IS MEASURED!!!!	We say we collaborate, but we don't (measure it)
Tangible/visible evidence of values, priorities everywhere.	Yes	A few have EUI "walls", title blocks, carbon counters and other things – but very few.
Accountability	People are mutually accountable to each other	It's not just a management process – it should also be within the firm – to each other – rarer in big firms.
Develop staff capabilities with intention	People are constantly learning more, intentional development paths, mentoring.	No effort to develop the 'soft' skills that enable tech success, not built into internal interactions (crits)

	STARTUPS/ENLIGHTENED CORPS	DESIGN & CONSTRUCTION FIRMS
PROCESS		
Feedback loops throughout Scrum Master (process leader) Collaboration Effectiveness Teams (not groups) Innovation LessonsLearned/continuous imprv	Constant Feedback = quality decision making Roadmap + Scrum Master – job IS *quality of process* Collaboration Effectiveness is…*MEASURED* Attention is paid to quality of team (structure/culture/trust) Innovation is built in as an expectation Lessons learned captured (at closeout) and inform next (2030)	Feedback is sporadic and value is lost It's the luck of the draw – process is not qualitative "design" We say we collaborate, but we don't measure it Trust, psychological safety or mutual accountability – nope Many firms afraid of it – few build it in to biz We keep selling our past mistakes. And get away with it.
CULTURE		
Values Staff as most valued resource Lack intention (show what counts) Asking the wrong questions and… Not asking the most import. Q's	Always challenge the process – better/faster/easier Staff ARE most valued asset and are treated that way Find the right / best *problem* first Always challenge, innovate *Not scared of the client*	Values manifest in work ("collaboration")? Staff – burn out, chaos, leaders cry Problem solving kills "problem finding" Don't challenge the process *Timid*
PERSONAL DEVELOP'T		
Leadership and other human skills Life-work balance Community building @ work Courage	Invest in human skills (PM, leadership, strategic thinking) Keep staff sane (@work, @ home) Autonomy & Accountability – balance Cross train, interdisciplinary	Little investment in enabling skills (PM/leadership) Balance?? *Hahahahahaha* Cross-disciplinary training? (Wight exception) Accountability *nil*
MANAGEMENT		
Structure & management Leadership Communication Change Management Pivoting adapting (culture) Metrics and KPIs Knowledge Management ACCOUNTABILITY	Agile Organizational Models Leadership at all levels, different flavors "Anytime feedback" Change Management is a discipline Unnecessarily repetitive work not tolerated Cross functional teams organic Pivot and adapt constantly (too much?)	Structure/management calcified, unresponsive Leadership – top heavy Communication stagnant Change management (who what now?) Metrics/KPIs – invisible losses abound Silos pretending to be cross functional teams Pivot and adapt? Agile as a concrete bunker

OUTCOMES

VS.

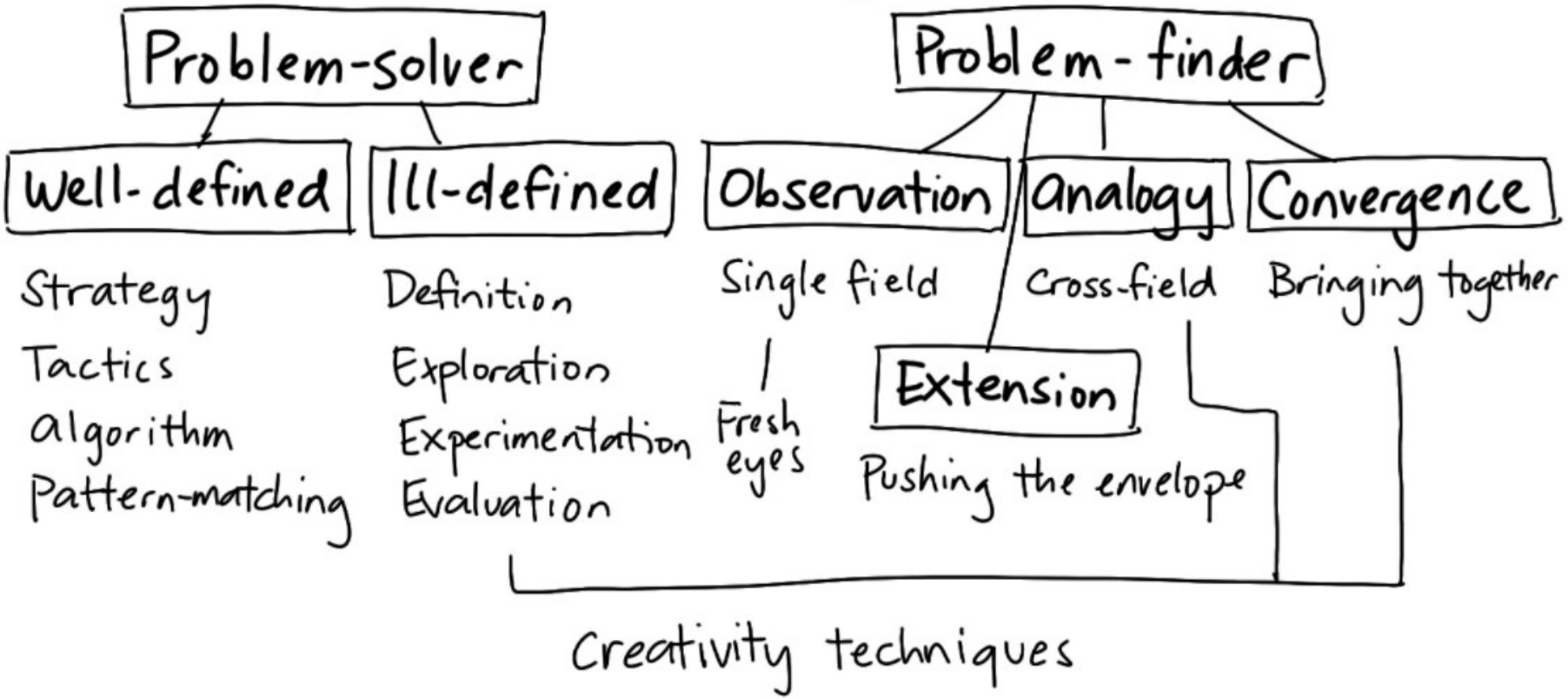


1. PROCESS

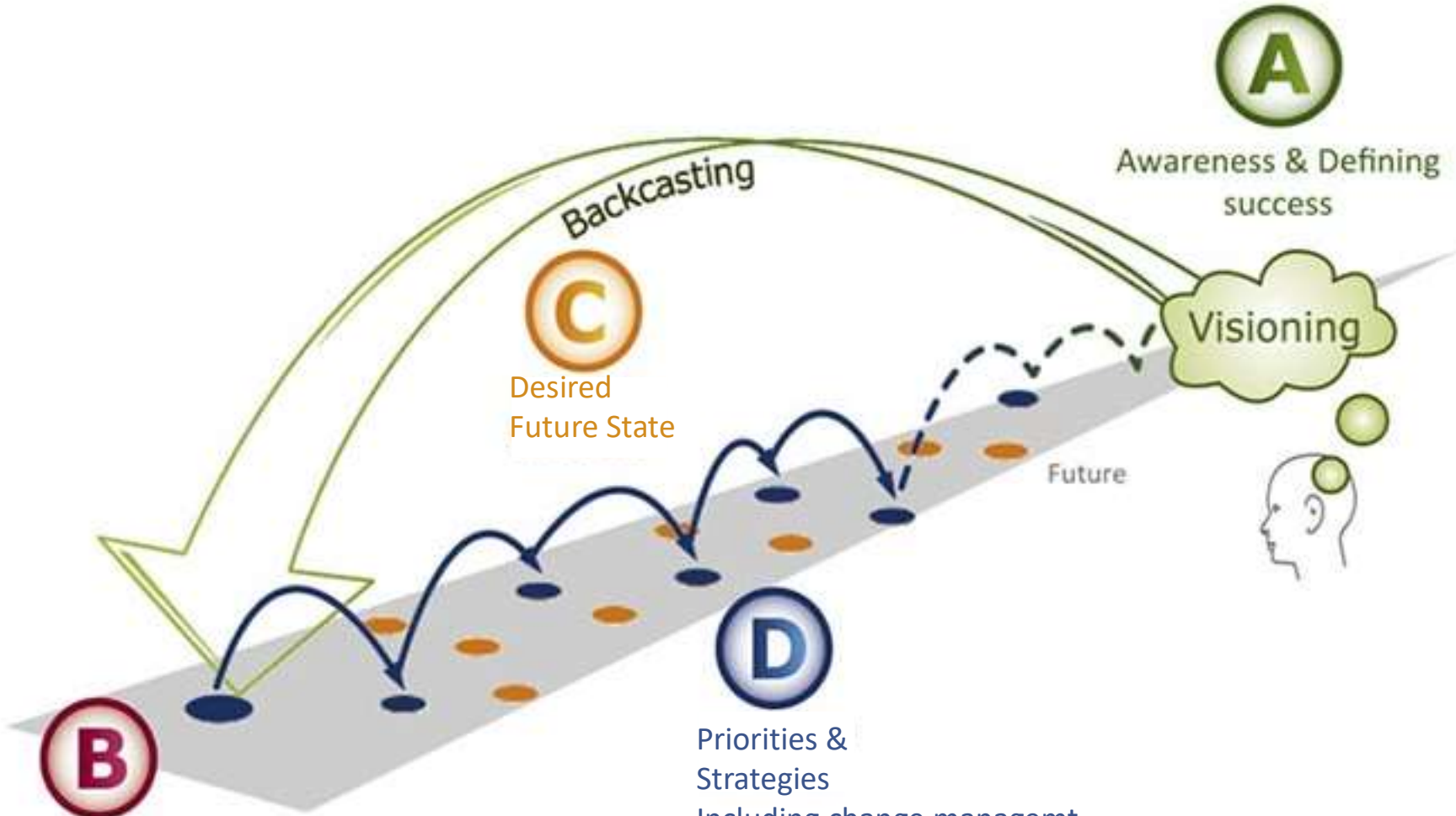
WHAT'S THE FIRST STEP IN YOUR DESIGN PROCESS?

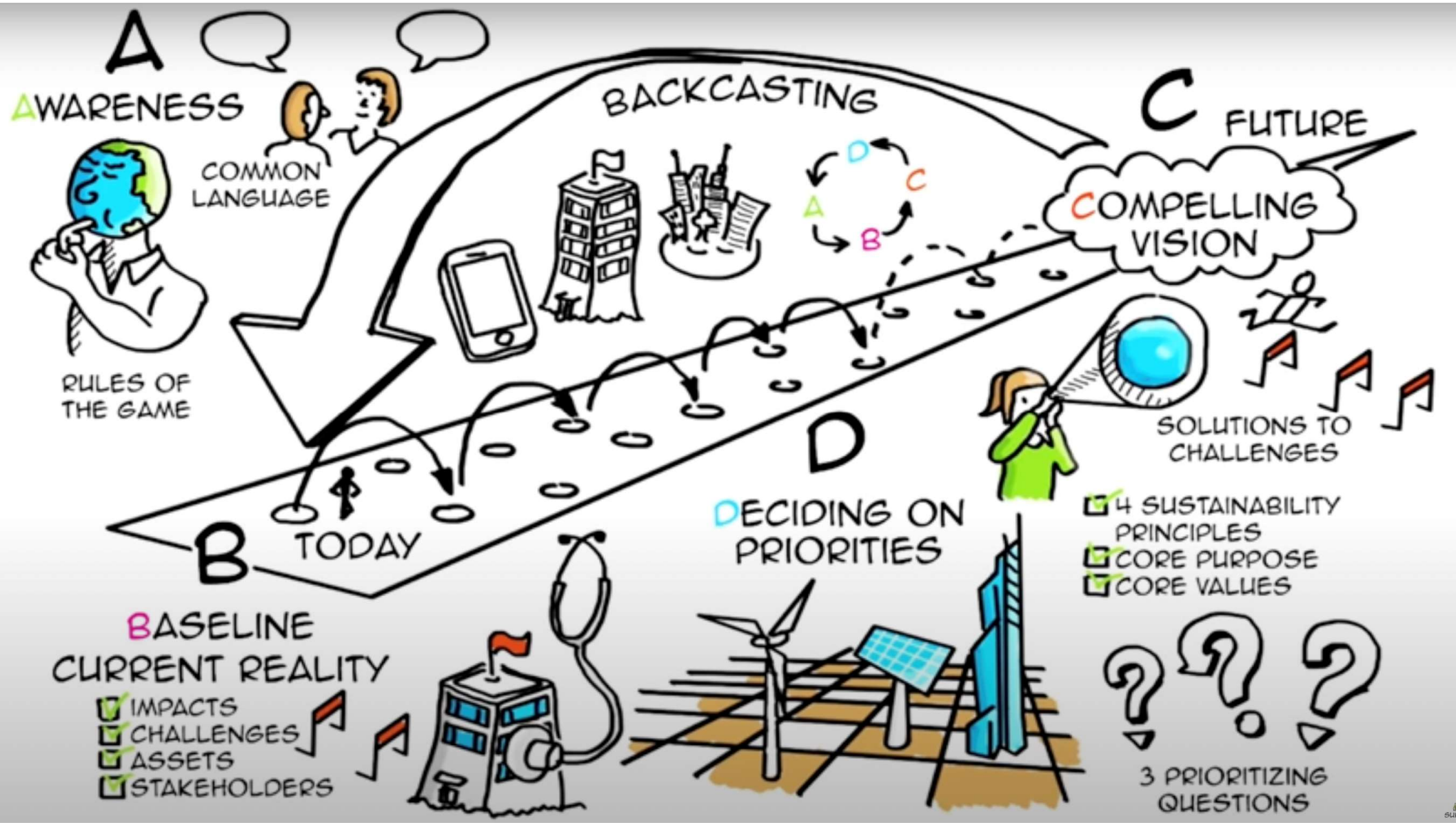
Thinking about problem-finding

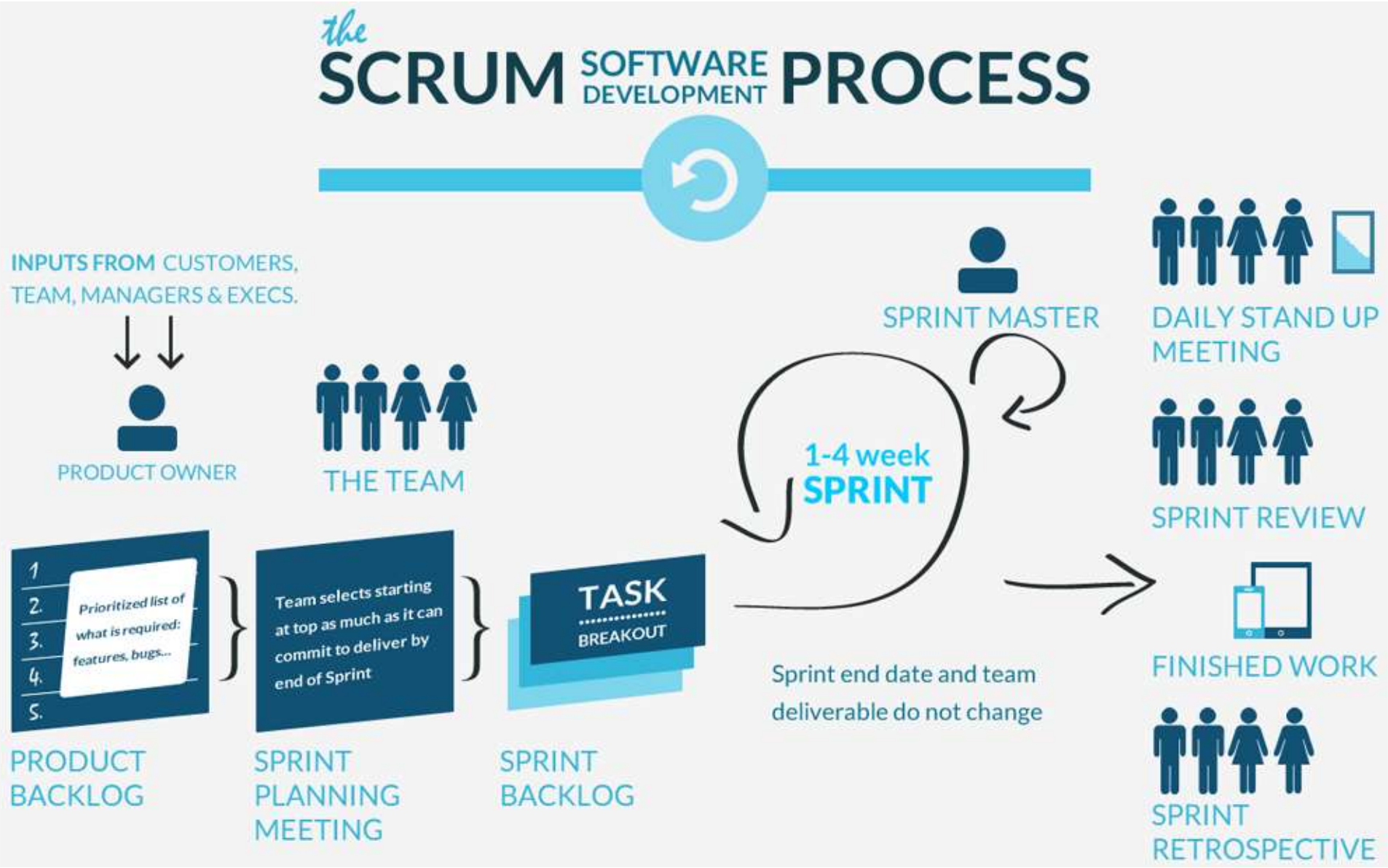
2015-07-05b



Hmm.. Maybe problem-finding is why I like the communities around Emacs, Quantified Self, and coding for fun...

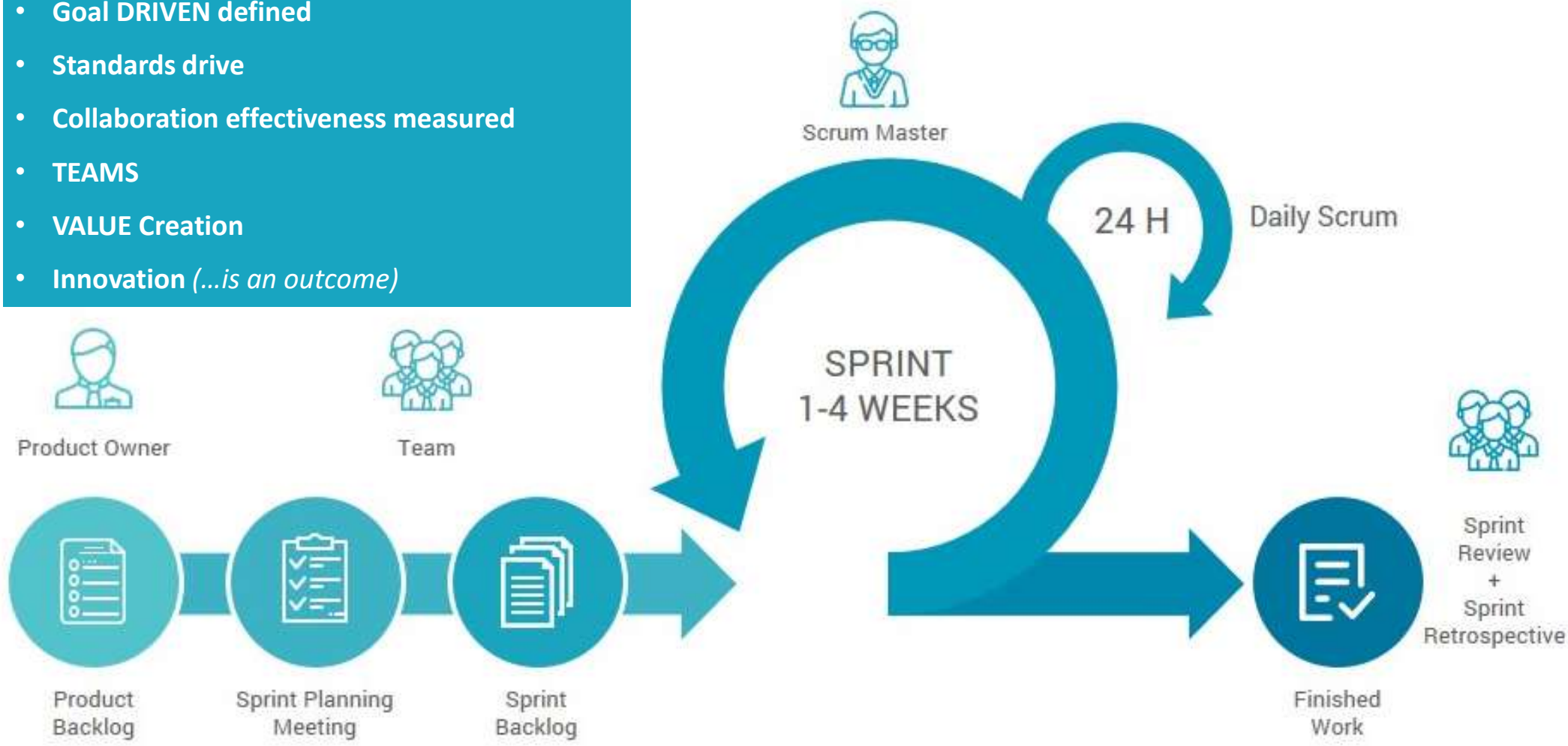

A
Awareness & Defining success
Backcasting
C
Desired Future State
Visioning
Future
D
Priorities & Strategies Including change managemt
B
Baseline Current state
Impacts
Challenges
Assets
Stakeholder
SWOT
© 2011 The Natural Step


A
AWARENESS
COMMON LANGUAGE
RULES OF THE GAME
BACKCASTING
C
FUTURE
COMPELLING VISION
SOLUTIONS TO CHALLENGES
4 SUSTAINABILITY PRINCIPLES
CORE PURPOSE
CORE VALUES
3 PRIORITIZING QUESTIONS
D
DECIDING ON PRIORITIES
B
TODAY
BASELINE CURRENT REALITY
IMPACTS
CHALLENGES
ASSETS
STAKEHOLDERS


the
SCRUM SOFTWARE DEVELOPMENT PROCESS
INPUTS FROM CUSTOMERS, TEAM, MANAGERS & EXECS.
PRODUCT OWNER
THE TEAM
SPRINT MASTER
DAILY STAND UP MEETING
1-4 week SPRINT
SPRINT REVIEW
1
2.
3.
4.
5.
Prioritized list of what is required: features, bugs...
Team selects starting at top as much as it can commit to deliver by end of Sprint
TASK
BREAKOUT
Sprint end date and team deliverable do not change
FINISHED WORK
PRODUCT BACKLOG
SPRINT PLANNING MEETING
SPRINT BACKLOG
SPRINT RETROSPECTIVE

SCRUM PROCESS

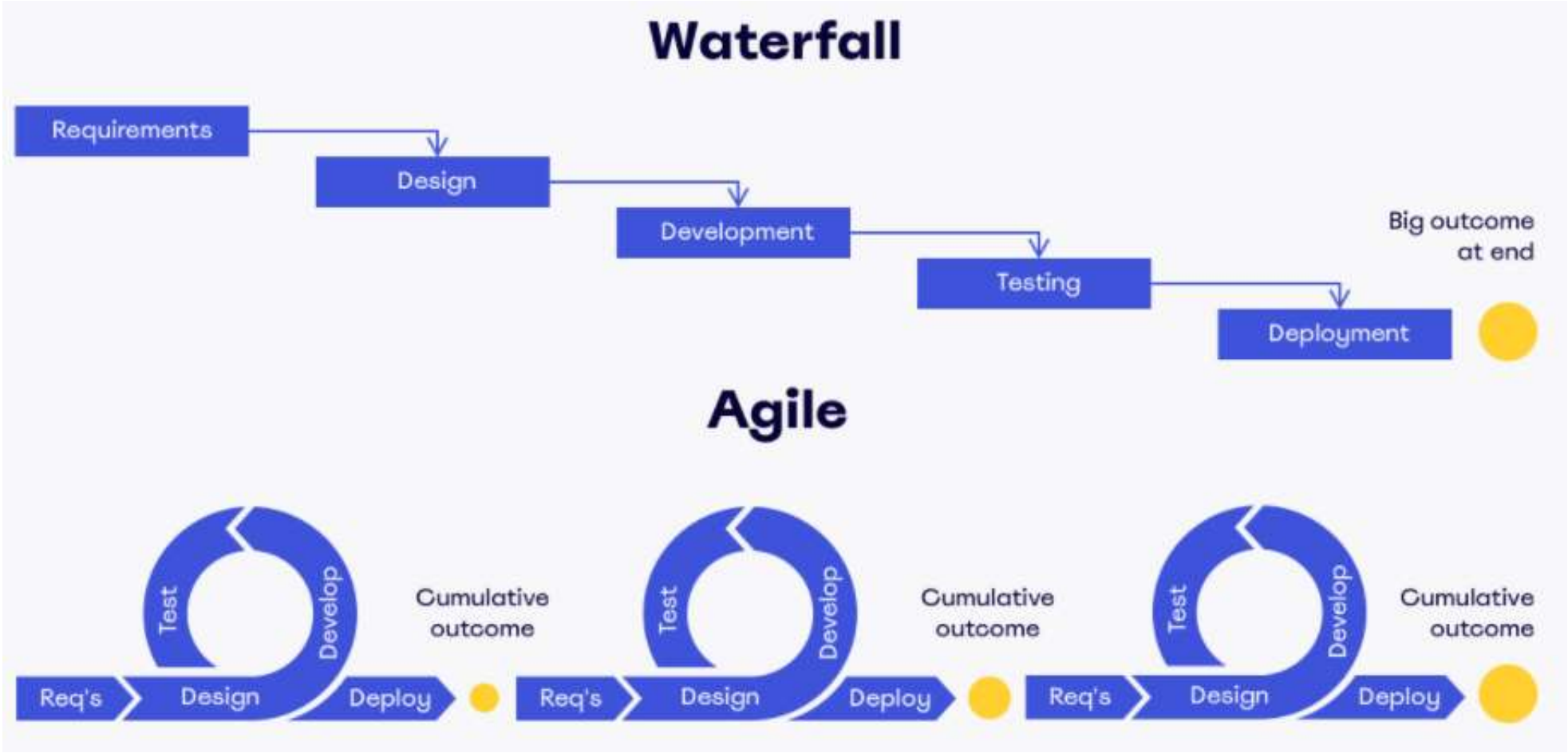
- **Scrum master: Process Quality Focus**
- **Feedback Loops: daily/weekly/monthly**
- **Goal DRIVEN defined**
- **Standards drive**
- **Collaboration effectiveness measured**
- **TEAMS**
- **VALUE Creation**
- **Innovation** *(…is an outcome)*

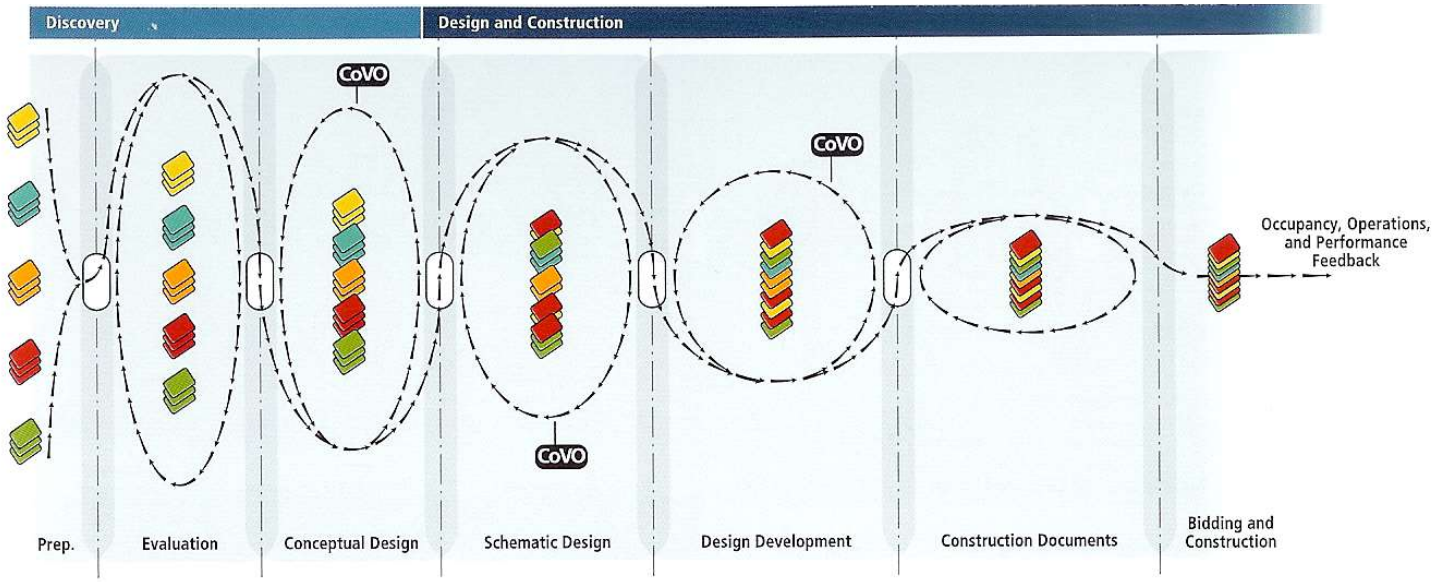


SCRUM MASTER

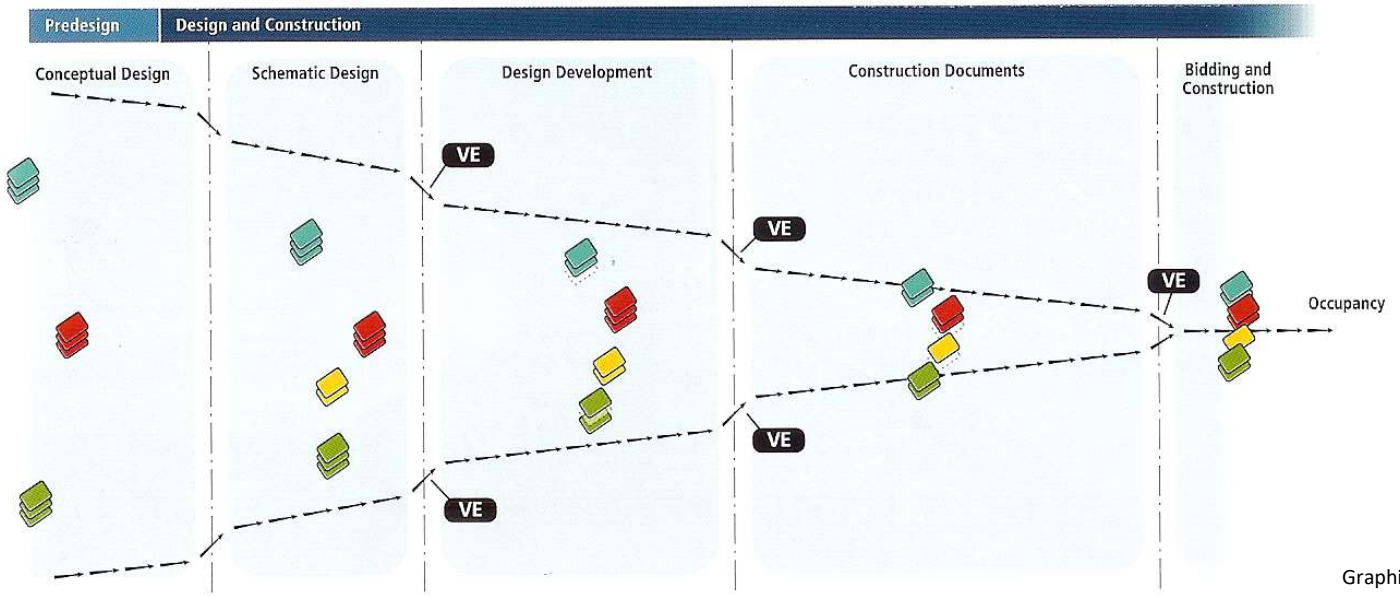
The traditional or “Waterfall” approach to product management treats each stage as separate and sequential.
Agile methods use iterative work cycles or sprints. The main difference is driven by outcomes; the Waterfall method focuses on ‘getting it right’ from creator’s standpoint, and Agile methods wants to iterate quickly to get more input and feedback.

When dealing with ambiguity and uncertainty – waterfall is not your friend, agile is. We have IDP but have never really transitioned….





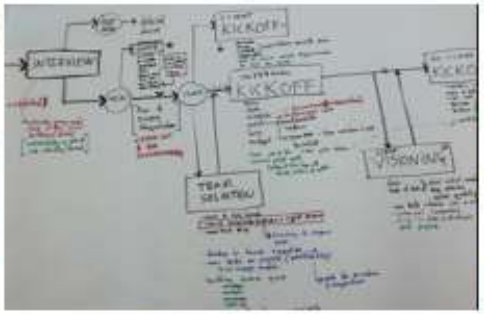
Highly Collaborative

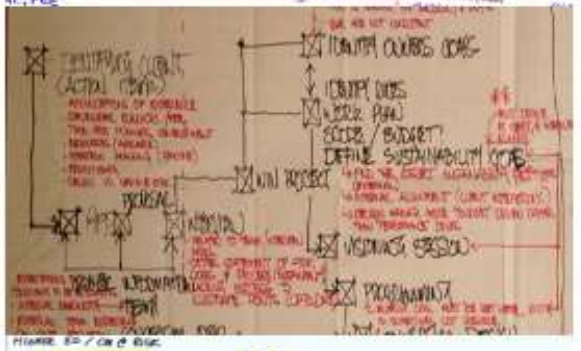


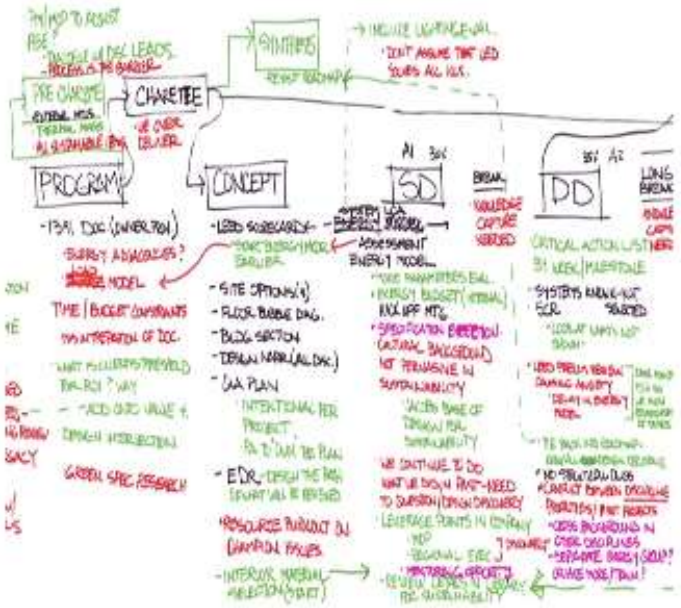
Business As Usual

Graphic credit: *The Integrative Design Guide to Green Buildings* 7Group, W.Reed

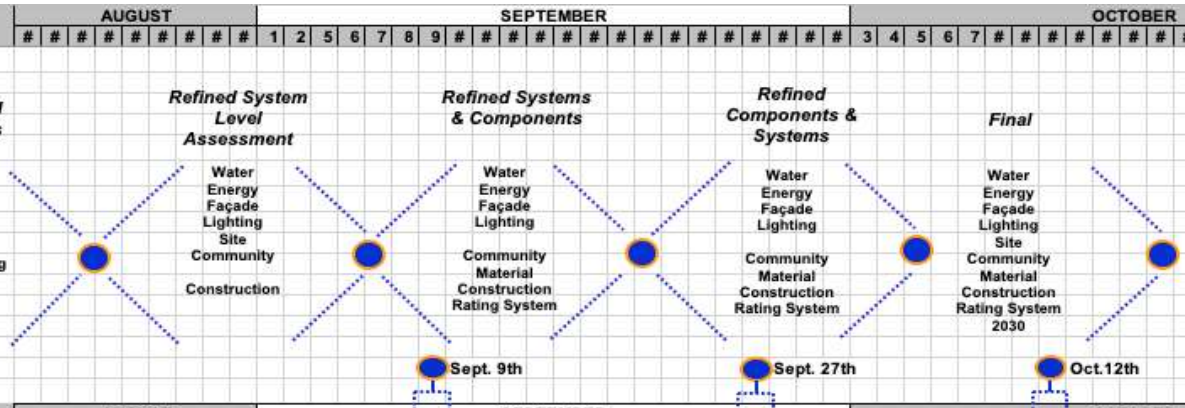
DOES YOUR FIRM HAVE A METHODOLOGY? DOES IT ENABLE ACHIEVING YOUR GOALS?







Focus Area	Title	Task	Action By (Lead/Support)	Due Date
Design Excellence		**Critical-path decision roadmap**		
C	Carbon			
H	Health			
W	Water			
E	Energy			
NvE	New vs. Existing			
	task			
	breakout mtg			
	end of series			
	larger team mtg			
	(aka integration wkshop)			
	Final decision/signoff			
	add QA			
Phase 1 & 2				
Focus Area	Title	Task	Action By (Lead/Support)	Due Date
Goal: *(there may be more than 1)*				
W	Assumptions	provide a rough estimate of irrigation requirements for site.		
W		provide an estimate of occupancy use, frequency and duration of building fixtures. Also estimate hot water needs.		
W		xxxx provide a rough estimate (you won't be held to this) of water demand quantity and supply opportunities (gallons per day)		
W		Gather the assumptions and circulate for team input/review		
W	Water profile tool round 1	input assumptions into water profile tool to do a prelim analysis of water flows		
W		Breakout MTG - discuss preliminary findings and system composition and function, cistern sizing, degree of filtration, and assumptions of operating costs and potential savings.		
W	Water profile tool round 2	refine water profile tool to further represent supply vs. demand, cistern sizing and degree of filtration, and shape analysis		
W	Cost Drivers (+/-)			
W	Cost Bundle#1	Group Mtg - outline water system comparison configuration, components for comparison, parameters to bundle, period to consider, cost components, methodology, and underlying assumptions. .	ALL	
W		complete analysis and distribute results		
W		Follow-up Meeting to present results, discuss questions		
Goal: *(there may be more than 1)*				
C	Boundary / definition	scope 1,2,3? Other		
C	Assumptions	(construction, operational, embodied)		
C	Analysis/Tool	Tally/EC3/other		
C	Cost Drivers (+/-)			
C				
Goal: *(there may be more than 1)*				
H	Boundary / definition			
H	Assumptions			
H	Analysis/Tool			
H	Cost Drivers (+/-)			
H				



This is one sample of a "roadmap" that I described in the session, that a team CO-creates together with an owner, and key consultants. **Objectives of a tool like this:**

- Create a crystal clear, shared understanding of goals, sequence of activities to achieve them, interactions (who needs to do what when, whose eyes are on it, who approves, etc.).
- Buy-in and mutual accountability – the ACT itself of creating this lays the foundation for owning it.
- Clarifying any gaps or overlaps in scope – identifying where they are and addressing that as early as possible.
- Often helps the client see things they may not have realized or paid attention to (esp. for the team's needs) and identifying barriers that owner has to deal with for the team to be successful (early on).

(no early "charrette" or kick off is complete without doing this!)

Image based off of an original graphic by Bill Reed

SPI's INSIDE-OUT CHARRETTES ™ and SUPER CHARRETTES TO SOLVE OVERCONSTRAINTS

INNOVATE THE PROCESS TO INNOVATE THE OUTCOME

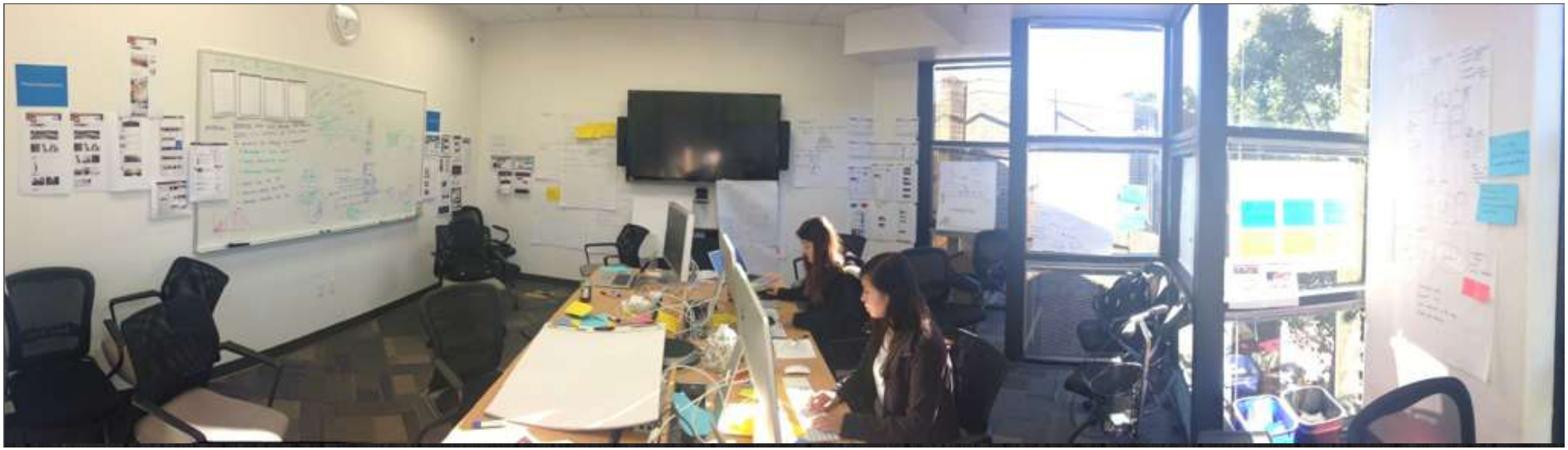
INSIDE OUT:

PART 1: scatter! Individual perspectives
equal voices, perspectives

PART 2: synthesize! The process of
integrating key ideas to optimize bldg. systems. Integration

SUPER CHARRETTE:

7-day sprint – finish SD!



2. CULTURE

HOW TANGIBLE / VISIBLE IS YOUR COMMITMENT?

PERSONAL DEVELOPMENT

- **Stability** (you "own" your project)
- **Cross training** (Wight & Co.)
- **Technical skills**
- **Human skills**
  - **leadership**
  - **communication**
  - **team effectiveness**
  - **project management**
  - **negotiation**
  - **giving/receiving feedback**
- **Intentional mixing of the two:**

  being a learning organization

  (using crits to teach how to give/receive feedback)

PEOPLE ! The most (only) valuable asset of any firm

Principals and PMs of larger firms are miserable, trying to manage teams when they are up against their staff being pulled on and off projects constantly, executives coming in and making decisions (stepping on authority), clients being allowed to constantly disrupt agreed-upon plans (other industries and smart firms either don't allow this or charge a premium for this!). This is NOT inevitable. This is a design problem. If it's our goal to protect our most valuable asset, how would the structure, management and business model of our firms change and adapt?????

Life-work balance

Cross train in different disciplines (Wight & Co model)

Leadership and other "human" (non-technical) skills

challenge the process
invite ideas from anywhere
manage conflict
communication skills,
persuasion negotiation

There's plenty of empirical data to support this strategic direction. Gallup, the research firm, recently did a meta-analysis across 199 studies covering 152 organizations, 44 industries, and 26 countries. It showed that **high employee engagement brings an uplift of every business performance number. Profitability up 16%, Productivity up 18%, customer loyalty up 12% and quality up an incredible 60%.**

Goleman, in his book *Primal Leadership*
The emotional "climate" can impact a company's profitability and business performance by **20-30%.**
Eerily familiar the parallelism that orientation of a building can impact its energy consumption up to 30%

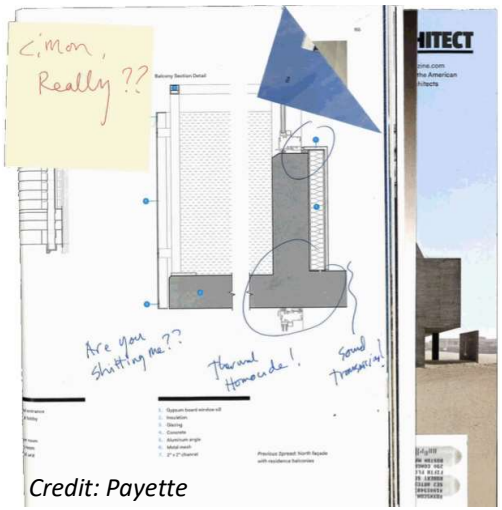
CULTURE Suggestions

Cultural transformations have many avenues, here are some examples of things you can do :

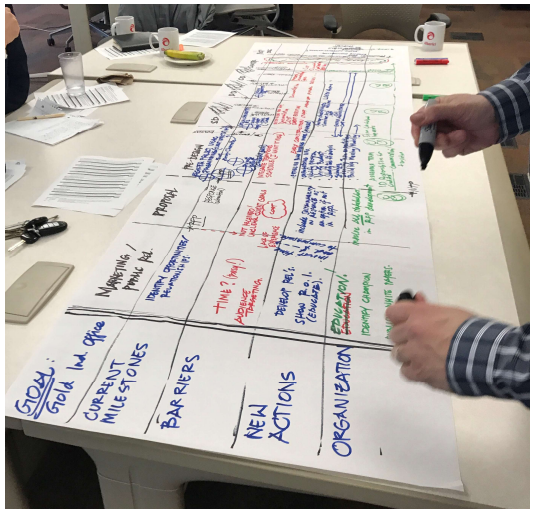
Interpersonal / leadership: take every opportunity to acknowledge and recognize individuals for behavior or achievements that are consistent with the desired culture and values of your firm. Encourage input and feedback from anyone (no matter their "level"). (and address people whose behavior is in conflict!)

Tangible evidence: such as pEUI "walls" (real or virtual) where active projects post their energy/carbon reduction targets in high traffic areas – to stimulate critical thinking, dialogue and debate ("*Why is your project tracking pEUI of 32 and ours is still at 57??"*?), or Challenge wall – where innovation challenges are posted or articles are questioned, or "EUI" title block added to drawings, identify places people will unavoidably run into the content every day – like Learning in the Loo or Loo Learning (see next slide for an example).

Engage people: in active problem finding/solving/ideation (see diagram below) – example, firm involves many staff in "redesigning" project delivery process to align with internally driven corporate performance goals.



Credit: Payette



This doesn't happen frequently, but when it does, everyone experiences engagement, feeling like their input is valued and heard, shared understandings develop and there's more "ownership" over any solution.

Internal award programs: best performing project, best solution to a hard problem, most improved EUI for a project type….

Over-arching reachable, but challenging goals: think fundraising thermometer – individual project goals are good, but really getting people motivated happens when everyone is interdependent in the firm to achieve an overarching goal (i.e. if you are a 2030 signatory, set an interim goal and challenge all to hit).

“LOO” LEARNING ! *(a ‘captive audience’…)*

January, 2019

[redacted]

Kensington Creative + Performing Arts High School
SMP Architects + SRK Architects
Photo credit: 2030 Palette

Technical Guide 1: Daylighting

Optimizing daylight on a project is not simple, but it is achievable if you think about it early in design. Daylighting requires an integrated design approach because it can involve decisions about the building form, siting, climate, building components (such as windows and skylights), interior design, lighting controls, and lighting design criteria. This newsletter is broken down into the following segments:

- Why?
- What and How?
- Be Careful!
- Questions to ask
- Collaboration

Working with clients
Working with consultants
Working across disciplines

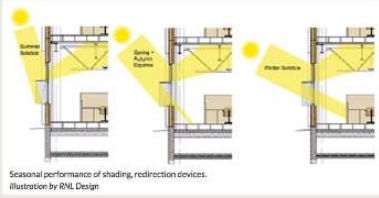
- Examples + Case Studies
- More Resources

Topic 2: Optimizing daylight
Improving natural light and reducing electric loads

WHY?
Proper daylighting enhances occupant comfort (visual acuity) and reduces energy use. Electric lighting can be a tremendous energy load so the more you can enhance natural light, the less electricity you need. (Lighting systems typically use between 30%-40% of a building's total energy consumption). As you know from working (if you have windows!) visual comfort can be a battle - glare, heat gain and other issues are common.

Remember, for more detail, look in the file on your server - these resources will grow over time:
P:_ABA_Project Support Docs\Sustainability

Here’s one example of a topic we created content for, for a CA firm….



Seasonal performance of shading, redirection devices.
Illustration by RNL Design

1. WHAT AND HOW?

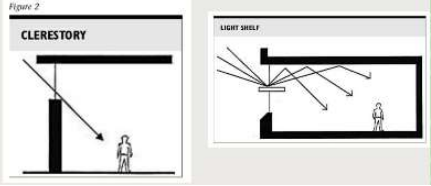
Successful daylighting depends on the optimized integration of systems, technologies, architecture and (sometimes) occupant behavior. While not all of these components are required for every daylighting design, one or more of the following are typically involved:

- Daylight-optimized building footprint (orientation and massing)
- Climate-responsive window-to-wall area ratio and envelope design
- High-performance glazing
- Daylighting-optimized fenestration design
- Skylights (passive or active)
- Tubular daylight devices
- Daylight redirection devices
- Solar shading devices
- Daylight-responsive electric lighting controls
- Daylight-optimized interior design (such as furniture design, space planning, and room surface finishes).

Most important is building massing and orientation, since that is set early on and can't be changed! Since daylighting components are ideally integrated with the original building design, it may not be possible to apply all the strategies in a retrofit project. Achieving good daylight design depends on early integration of interior design and architecture.

If the project allows, consider a building footprint that maximizes southern and northern exposures, and minimizes eastern and western exposures. A floor depth of no more than 60 ft. from south to north has been shown to be viable for daylighting. A maximum facade facing due south is the optimal orientation. Deviation from due south should not exceed 15° in either direction for best solar access and ease of control.

Figure 2



2. BE CAREFUL !

Be careful! You don't want to create problems with unintended consequences that then need solutions! Glass curtain wall buildings may be sexy but usually create more problems than they solve, especially for occupants and what they need in the space. Lots of glass does NOT = good daylighting. Windows serve two purposes, to let natural light to illuminate a space in and to provide views to the outside. That translates (ideally) to two strategies. First, using clerestory light (or use of light shelves to help bounce light) for ambient light in the space and second, views, the glass for which should be recessed or shaded in some way.

3. COLLABORATION

Working with clients: First, try and encourage the client to articulate what they care about in terms of worker health, wellbeing and productivity. If this is a priority, it will be helpful to draw out their interests so that (later) you can connect your daylighting strategies to those interests and make a compelling case. Sometimes careful daylighting design can really boost the aesthetic "design" approach and the sexy-factor can compel clients because they want something unique and iconic. It is also critical to understand the building operator's capability. You must design to the appropriate level of sophistication of the operator, or else problems will occur. Good solutions are not completely cost-dependent - you can achieve good outcomes with highly sophisticated controls, or basic mechanical strategies - but this factor will influence design decisions! As with other aspects of design, it will be important to understand the owner's threshold for return on investment. If they invest in a more sophisticated controls system, and it has a 5 year payback - will that work?

Working with consultants: Analysis should be done (can be analog, physical models or computer simulation) to see the depth and concentration of light in different spaces – make sure that you understand when and how you want to do this analysis early in the design process so that decisions can reflect the outputs of that analysis. It is important at the outset of the design process, to map the critical-path-decisions so you can coordinate who does what when! It is also important to coordinate the inputs from lighting and daylighting consultants to the energy model (if you are doing one) at the right time, and for cost-bundling estimates to look at systems comparisons and not just line-item costs.

Working across disciplines: Interior design and architecture should be integrated during the earliest design considerations. Daylighting is one of the areas that benefits from integration of envelop and massing decisions with programming, space layout, lighting fixtures, etc, and interior design can't be an "after thought. Landscaping can sometimes be another aspect to coordinate - from basic siting issues to location of major elements like trees and other elements that provide shade.

4. QUESTIONS TO ASK:

- What visual tasks will occupants be engaging in (in each major space)? How much can electric lighting be reduced by optimizing daylight?
- How will occupancy, design decisions or other options impact the energy model?
- How will people operate the space (will there be a sophisticated building operator, in which case, higher tech systems with sensors and sophisticated controls maybe appropriate – or keep low tech?)
- Are daylight-responsive lighting controls an appropriate technology given operational budget and staffing? If so, are the savings from the control system factored into the life cycle cost analysis?

5. RESOURCES:

Websites
Technical Manual (WBDG): **Whole Building Design Guide** - general guide
WBDG: **Sun control and shading devices**
2030 Palette: **Daylighting from multiple sides** and **Form for Daylighting** and **Top Daylighting Controls** (and more!)
Sustainable Facilities Tool for **decision making**
See Payette's blog for: **Low E Coating on Insulated Glazing Units**
Advanced Building's **Daylight Pattern Guide**
Recommended books: **IES Design Guide**, Concepts and Practice of Architectural Daylighting, Fuller Moore and Daylighting for Sustainable Design, Mary Guzowski.

Examples and Case Studies:
NYSERDA case studies
GSA case studies
SoCalEd **resources**
The 2030 Palette is always worth exploring!

Questions? Requests? Feel free to explore our website or contact me:
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bb@sustainable-performance.org
www.sustainable-performance.org

Values manifest *(behavior aligns!)*

Everyone's input matters

Internally driven goals

Problem FINDING first

Mindset – start at zero
Courage

Innovation is life
Stagnation is death
We adapt

Dysfunction is not tolerated

3. ACCOUNTABILITY

HOW DO YOU KNOW……?

A TALE OF ACCOUNTABILITY (IN REAL LIFE)….

They focus is on teaching a new way of thinking plus a “belt and suspenders” back up. They set a **clear expectation** – you have X time to get good at this and then EVERYONE is expected to do it…. Or else.

1. A sustainability coordinator must be assigned by PM. If none assigned, it’s the PM by default.

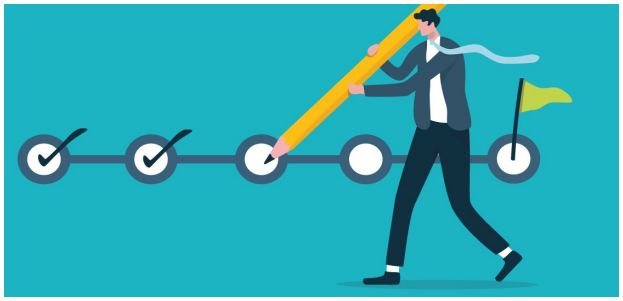
2. First Step: **You can’t bill or OPEN accounting to post time to a project UNLESS you’ve done certain steps**. #1 is a “sustainability goal plan” prior to SD. The system won’t let you go on until you do.

3. They created a boiled down (**7 things to set goals on in every project** before you start designing) with lots of support - and What Financial Story to tell.

4. Second step is during design: There are 2 design reviews: at SD and DD. Sust. Dir. attends both. **You can NOT present to a client unless you did the design review.**

5. **QA** is done by a Central Production Director who reviews and gives **A SUSTAINABILITY SCORE** (see dashboard). If the score is low, then SD gets alerted by email and can step in and find out why and support as necessary. This is a BACKSTOP if review is not ‘perfect’. The CEO gets copied if the score is super low. When this happened the first time, the Team leader jumped right on it – figured out how to solve the issue by end of week! *(Wash, rinse, repeat – same process in DD).*

6. Project reviews: **There are monthly meetings on ALL projects** (they have 100 concurrent projects) and they do 40 meetings. Those are billed to the project.



7. Design Pin Ups: There is one for every Friday. It helps make employees BRAVE and FEARLESS (they use this to teach teams how to give and receive feedback constructively – and other skills).

8. Celebrate successes: Every PM who succeeded was celebrated!! Big Show-n-tell! "Internal top 10 design award" Best work gets recognized and shown as an example to the rest of the firm!!!

9. HR came up with automating annual review with new app. Shows list of all your projects with docs attached. THIS YEAR includes your QA Score and the question: **How did you influence outcome? Encourage advocacy** (as part of review)

10. They did a quiz to find out what everyone knows and they got a **94% success** grade. 10 questions like "what is EUI?". Then "What are the top 10 things you can do to impact EUI?"

11. **Rotations** – (like Wight & Co.) Everyone rotates thru the "CORE" (sustainability) team for 2 weeks (about 20 hours or so). This is focused time deeply on sustainability. Then survey and quiz on what they learned, then debrief to reinforce that we do this ALL the time!!! (good to do on "down time" between projects) It's a deep immersion experience and done for ALL levels of project staff!!!
100 out of 161 people will do it by end of this year, including business service people. 80% of 160 are project staff.

12. Double benefit: Also normal things like lunch n learn sessions – they feature YOUNGER staff intentionally – that messages to senior people to TAKE NOTICE – create a sense of urgency (or reinforces it) "hey, these young people are eating my lunch!!!"

DO YOU KNOW HOW YOUR PROJECTS ARE DOING??

KNOWI.com for data visualization (tied to Deltek Ajera system.

Birdseye monitoring and tracking: Every Monday, the SD gets a status on all projects. Early on, 78% of projects that started as they should, began to "drift". But because they were tracking and watching, they were able to pop in and do a course correction with the team.

They step in and do correction if needed BUT then they **CHARGE** their time to that project so there is an incentive to NOT need intervention!!!!
There are consequences!

They communicated this with total transparency from the beginning plus they use all of their back stops.

Within 2 weeks of the drifting – the 78% went up to 86%. The goal is to keep variability within 5% (they have a GOAL!)

4. COLLABORATION EFFECTIVENESS

HOW CAN YOU MEASURE IT?

MEASURING TEAM / COLLABORATION EFFECTIVENESS: PROCESS

1. Setting norms – charter
2. Evaluating at key points, predetermined
3. Informal feedback channels as needed

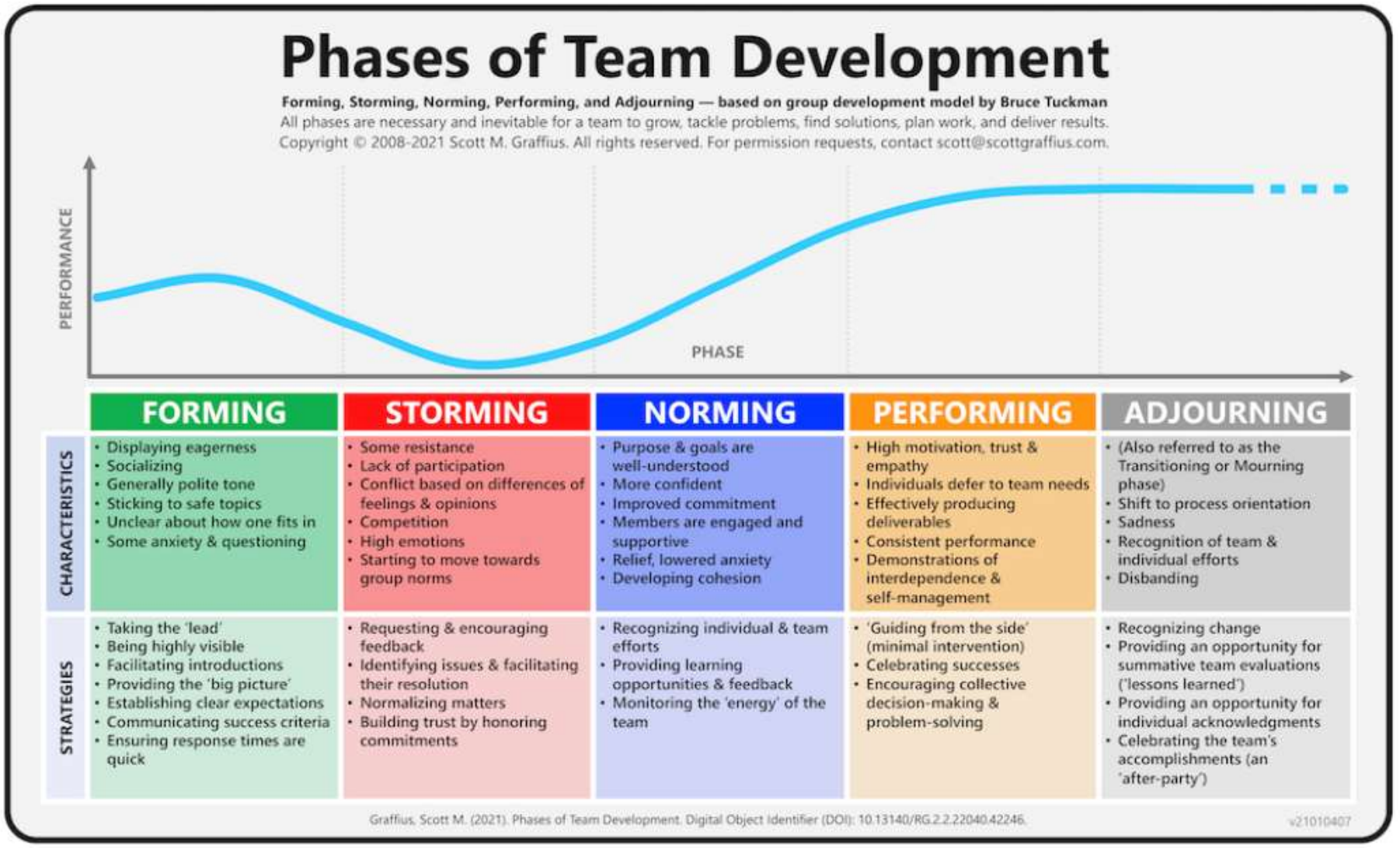
Achieving collaboration effectiveness involves a few steps.
First – establishing a baseline and a shared understanding of concepts, language, objectives and desired outcomes (norms, a group "charter"). This will be the touch stone that you measure your team's effectiveness against.

Second, determining when and how you will evaluate yourselves – formally and informally. Having a few times for more formal feedback loops that are planned is key in larger teams – with a second means defined for informal "anytime" feedback. Midpoints to major milestones are a good time, and at project closeout (assuming you DO a closeout!).

Also, keep in mind that groups have different stages as they evolve into a true team (especially if the people involved include "new" people who have not worked together before).

Lastly, it can be helpful to do a quick version of personality and/or conflict assessments (DiSC, Thomas Kilman KPI) early on to give individuals a safe way of revealing and discussing their personal styles and a common (non-judgmental) language to do so especially when issues come up.

Bruce Tuckman's model on group development



Graffius, Scott M. (2021). Phases of Team Development.

Tuckman's model applied to tech…

SWOOP Teams Maturity Model

Team Characteristics Over Time

Forming

Disconnected

- Digital Team created
- Single Leader
- Membership fluid
- Team Purpose identified
- Will appear 'Disconnected'

- Key Statistics
- User Activity
- Channel Activity
- Team Persona
- Team Network Map

Storming

Single Leader

Forum

- Single Leader
- Group type agreed
- Membership and stakeholders identified
- Group norms identified
- ***Single Leader Teams and Forums need not mature beyond this stage***

- Interactive Users
- Key Player Dependency
- Response Rate
- Most Engaging Posts
- Stability
- Team Persona
- Team Network Map

Norming

Community

Self-Directed Team

- Single leader gives way to self-direction
- The core is well formed and self-directed
- Self-directed team is the core
- Community has a 'gallery' engaged through a self-directed core

- Two-Way Relationships
- Curiosity Index
- Mention Index
- Key Player Dependency
- Stability
- Team Persona
- Team Network Map

Performing

Team of Teams Hub

- Team identified as a 'Hub' in the 'Team of Teams' network.

- Key Player Dependency
- Two-way Relationships
- Stability
- Team Persona
- Team Network Map
- Team of Teams Network Map (Enterprise Tab)

HOW DO YOU MEASURE COLLABORATION EFFECTIVENESS?

1. QUANTITATIVE METRICS (things you can count and measure)

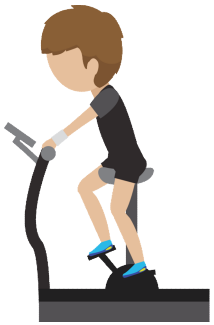
- Someone (with the appropriate skills and personality) is RESPONSIBLE for the quality of the process (may wear two hats, but one is focused on process).
- The number of times people think/share ideas or suggestions outside of their discipline (MEP engineer suggesting siting/massing) can be "counted".
- A project Roadmap is co-created as a deliverable of very early meeting – outlining the sequence of interactions to achieve project goals, feedback loops.
- Project goals are articulated and documented and included in the roadmap explicitly wherever decision making sequence is outlined.
- Every significant decision is informed by specific data and agreed upon metrics (those should be trackable from outset, goals thru analysis and POE)
- The number of innovative suggestions about the process itself and how to optimize it to achieve a better outcome.
- The data! What was achieved – especially super achievement above or beyond the initially established goals!

2. QUALITATIVE INDICATORS *(things you can observe and share anecdotally)*

- Group engages in adequate 'Problem Finding' before jumping into 'Problem Solving'
- Team members listen deeply, closely to each other and respond (first) with empathy to any situation, especially conflict. Seeking to understand first.
- Preconceived notions do not drive or define problem finding OR solving.
- Team establishes trust and psychological safety with each other at the earliest possible.
- Everyone has equal ability and authority to share ideas, make suggestions and challenge the process (with the intent to continuously improve it).
- People feel empowered, autonomous and competent to contribute their knowledge and think "beyond their silos".
- The team has a shared understanding of the vision, goals and desired outcomes for the project and those are consistently reiterated and/or tied into the workplan or roadmap so no one loses sight of them.

EXERCISE





Choose a topic that resonates most with you now – and you will self-organize into groups of 3-5 to 'design' solutions!
Compete to see who can come up with the most compelling ideas – we will vote after debrief!!

1. People's Value: Imagine people were your firm's most valuable asset – how might the structure and management of your firm change to reflect that? How would the firm function differently if it were designed to achieve that goal?

2. Metrics & KPIs: How can you capture what you don't see outside of what you are measuring? How can you build a feedback loop for 'open' feedback?

3. Collaboration Effectiveness: How can you get the most out of collaboration? How might you measure the effectiveness of your teams (qualitative & quantitative)?

4. Continuous Improvement: How can you systematically capture lessons learned? 2030 Signatories – how do yu leverage DDx data? What feedback loops could your firm put in place to create processes for continuous improvement?

5. Accountability: Carbon? EUI? Health? Project Budget? How will you know? How can you know what's going on – especially in time to help anyone struggling?

What do you commit to focus on tomorrow?

Every day, we make choices . . .

There's never been a better time to BE the CHANGE that Margaret Meade described.

We need to be BRAVE. **Failure is not an option**.

Challenge the process. Always.
Help everyone around you to be their best.
DISRUPT the status quo (it sucks)
its broken
it doesn't work
it doesn't create (enough) value
SCRUM it.
Roadmap every project – iterate feedback loops.
Mindset – START at zero. No wusses.
SHOW CLIENT the gap between them and zero.
Don't accept living with dysfunction.

ASK: What if… What would it take to….

Problem FINDING – don't jump to "solutions"

Viva La Revolution!

Scientific American Sept. 2006
'A choice between two futures'

THANK YOU !

Screen shot this and email for a list of resources & bibliography

BB@SUSTAINABLE-PERFORMANCE.ORG

…and let's connect on LinkedIn ☺

Scientific American Sept. 2006
'A choice between two futures'