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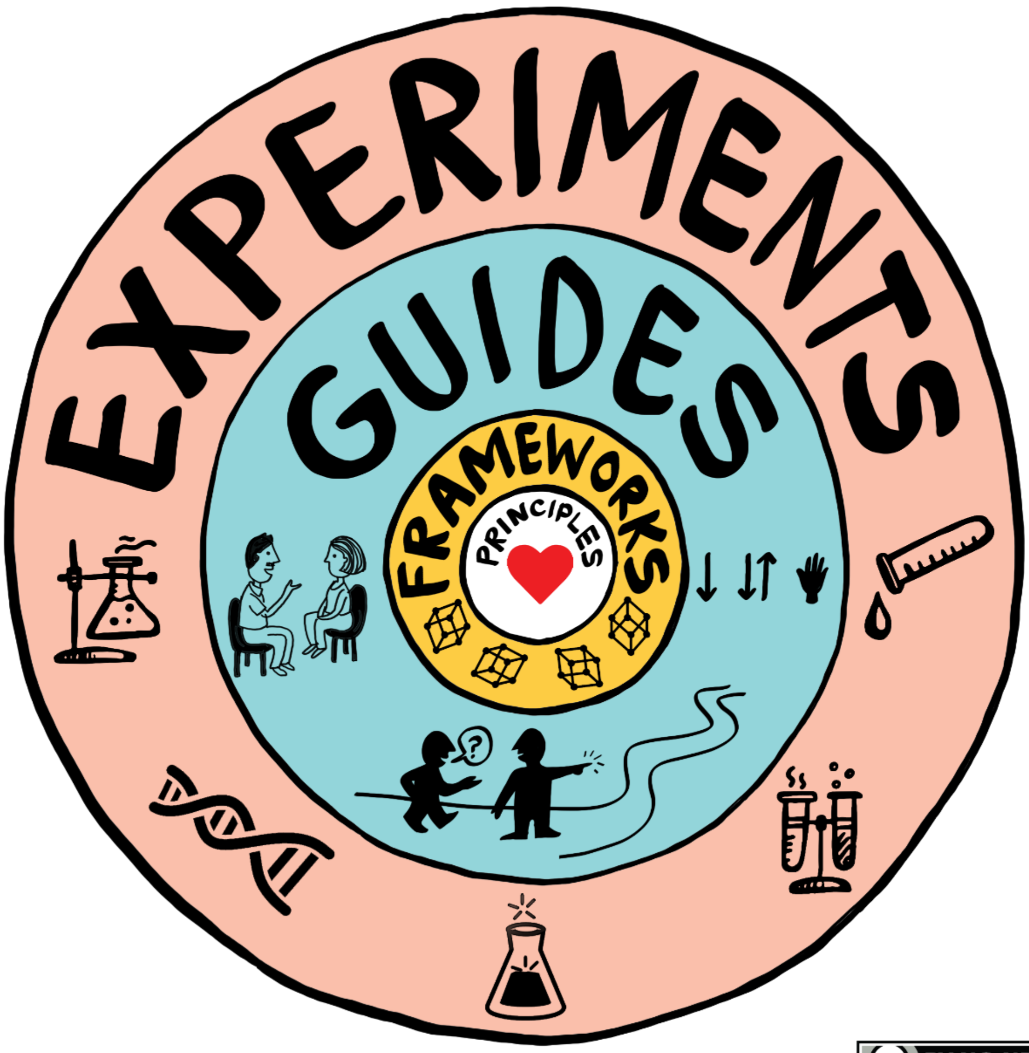
Large Scale Scrum (LeSS)



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LeSS as a framework

LeSS is more than a set of principles and experiments. It also provides a framework with rules. The LeSS Rules define what is LeSS (and what isn't) and they provide a concrete framework for applying LeSS. Within the LeSS Framework, product groups can apply the experiments and discover what works best for them at a certain moment.

There are no such things as best practices. There are only practices that are good within a certain context.

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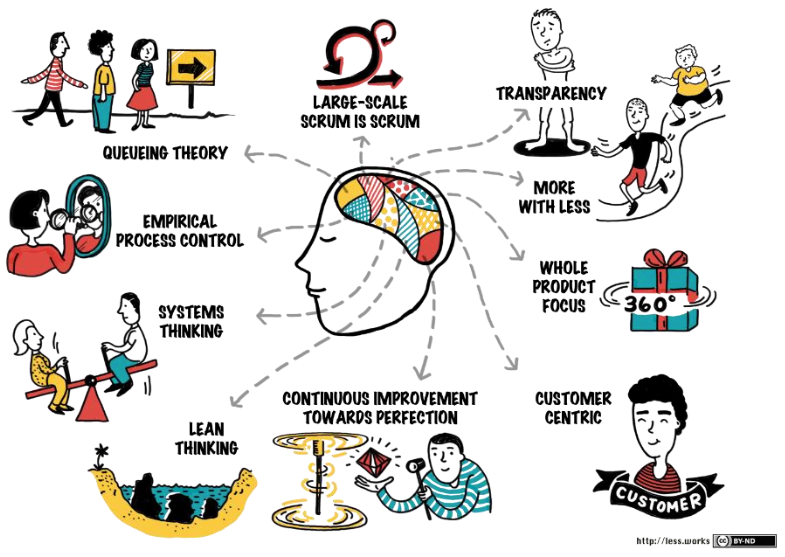
LeSS Principles



Large-Scale Scrum is Scrum—It is not “new and improved Scrum.” LeSS is about applying the principles, elements, and purpose of Scrum in a large-scale context. Multiple-team Scrum, not multiple Scrum teams.

Empirical process control—Inspection and adaptation of the product, processes, organizational design, and practices to craft a situational appropriate organization based on Scrum, rather than following a detailed formula. And empirical process control requires and creates transparency.

Transparency—Based on tangible ‘done’ items, short cycles, working together, common definitions, and driving out fear in the workplace.

More with less—(1) In empirical process control: more learning with less defined processes. (2) In lean thinking: more value with less waste and overhead. (3) In scaling, more ownership, purpose, and joy with less roles, artifacts, and special groups.

Whole-product focus—One Product Backlog, one Product Owner, one potentially shippable product increment, one Sprint—regardless if there are 3 or 33 teams. Customers want the product, not a part.

Customer-centric—Identify value and waste in the eyes of the paying customer. Reduce the cycle time from their perspective. Increase feedback loops with real customers. Everyone understands how their work today directly relates to paying customers.

Continuous improvement towards perfection—Create and deliver a product all the time, without defects, that utterly delights customers, improves the environment, and makes lives better. Do humble and radical improvement experiments each Sprint towards that.

Systems thinking—See, understand, and optimize the whole system (not parts), and explore system dynamics. Avoid the local and sub-optimizations of focusing on the ‘efficiency’ or ‘productivity’ of individuals and individual teams. Customers care about the overall concept-to-cash cycle time and flow, not individual steps.

Lean thinking—Create an organizational system whose foundation is managers-as-teachers who apply and teach systems thinking and lean thinking, manage to improve, and who practice **Go See** at **gemba**. Add the two pillars of respect for people and continuous improvement. All towards the goal of **perfection**.

Queuing theory—Understand how systems with queues behave in the R&D domain, and apply those insights to managing queue sizes, work-in-progress limits, multitasking, work packages, and variability.

LeSS Rules (April 2018)

LeSS Framework Rules

The LeSS framework applies to products with 2-“8” teams.

LeSS Structure

- Structure the organization using real teams as the basic organizational building block.
- Each team is (1) self-managing, (2) cross-functional, (3) co-located, and (4) long-lived.
- The majority of the teams are customer-focused feature teams.
- Scrum Masters are responsible for a well-working LeSS adoption. Their focus is towards the Teams, Product Owner, organization, and development practices. A Scrum Master does not focus on just one team but on the overall organizational system.
- A Scrum Master is a dedicated full-time role.
- One Scrum Master can serve 1-3 teams.
- In LeSS, managers are optional, but if managers do exist their role is likely to change. Their focus shifts from managing the day-to-day product work to improving the value-delivering capability of the product development system.
- Managers’ role is to improve the product development system by practicing Go See, encouraging Stop & Fix, and “experiments over conformance”.
- For the product group, establish the complete LeSS structure “at the start”; this is vital for a LeSS adoption.
- For the larger organization beyond the product group, adopt LeSS evolutionarily using Go and See to create an organization where experimentation and improvement is the norm.

LeSS Product

- There is one Product Owner and one Product Backlog for the complete shippable product.
- The Product Owner shouldn’t work alone on Product Backlog refinement; he is supported by the multiple Teams working directly with customers/users and other stakeholders.
- All prioritization goes through the Product Owner, but clarification is as much as possible directly between the Teams and customer/users and other stakeholders.
- The definition of product should be as broad and end-user/customer centric as is practical. Over time, the definition of product might expand. Broader definitions are preferred.
- One Definition of Done for the whole product common for all teams.
- Each team can have their own stronger Definition of Done by expanding the common one.
- The perfection goal is to improve the Definition of Done so that it results in a shippable product each Sprint (or even more frequently).

LeSS Sprint

- There is one product-level Sprint, not a different Sprint for each Team. Each Team starts and ends the Sprint at the same time. Each Sprint results in an integrated whole product.
- Sprint Planning consists of two parts: Sprint Planning One is common for all teams while Sprint Planning Two is usually done separately for each team. Do multi-team Sprint Planning Two in a shared space for closely related items.
- Sprint Planning One is attended by the Product Owner and Teams or Team representatives. They together tentatively select the items that each team will work on that Sprint. The Teams identify opportunities to work together and final questions are clarified.
- Each Team has their own Sprint Backlog.
- Sprint Planning Two is for Teams to decide how they will do the selected items. This usually involves design and the creation of their Sprint Backlogs.
- Each Team has their own Daily Scrum.
- Cross-team coordination is decided by the teams. Prefer decentralized and informal coordination over centralized coordination. Emphasize Just Talk and informal networks via communicate in code, cross-team meetings, component mentors, travelers, scouts, and open spaces.
- Product Backlog Refinement (PBR) is preferably done with multiple teams to increase shared learning and to exploit coordination opportunities.
- There is one product Sprint Review; it is common for all teams. Ensure that suitable stakeholders join to contribute the information needed for effective inspection and adaptation.
- Each Team has their own Sprint Retrospective.
- An Overall Retrospective is held after the Team Retrospectives to discuss cross-team and system-wide issues, and create improvement experiments. This is attended by Product Owner, Scrum Masters, Team representatives, and managers (if any).

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LeSS Huge Framework Rules

LeSS Huge applies to products with “8+” teams. Avoid applying LeSS Huge for smaller product groups as it will result in more overhead and local optimizations.

All LeSS rules apply to LeSS Huge, unless otherwise stated. Each Requirement Area acts like the basic LeSS framework.

LeSS Huge Structure

- Customer requirements that are strongly related from a customer perspective are grouped in Requirement Areas.
- Each Team specializes in one Requirement Area. Teams stay in one area for a long time. When there is more value in other areas, teams might change Requirement Area
- Each Requirement Area has one Area Product Owner.
- Each Requirement Area has between “4-8” teams. Avoid violating this range.
- LeSS Huge adoptions, including the structural changes, are done with an evolutionary incremental approach.
- Remember each day: LeSS Huge adoptions take months or years, infinite patience, and sense of humor.

LeSS Huge Product

- One (overall) Product Owner is responsible for product-wide prioritization and deciding which teams work in which Area. He works closely with Area Product Owners.
- Area Product Owners act as Product Owners towards their teams.
- There is one Product Backlog; every item in it belongs to exactly one Requirement Area.
- There is one Area Product Backlog per Requirement Area. This backlog is conceptually a more granular view onto the one Product Backlog.

LeSS Huge Sprint

- There is one product-level Sprint, not a different Sprint for each Requirement Area. It ends in one integrated whole product.
- The Product Owner and Area Product Owners synchronize frequently. Before Sprint Planning they ensure the Teams work on the most valuable items. After the Sprint Review, they further enable product-level adaptations.

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- Avoid… ‘Solving’ requirement problems with a documented meta-model 232
- Avoid… A complex requirements meta-model 233
- Avoid… Describing a simple meta-model in a complex way 233
- Avoid… Separate analysis or specialist groups 234
- Avoid… Separate systems-engineering group 234
- Avoid… Separate interaction design group 235
- Avoid… Separate architecture group 235
- Avoid… Fake team members 235
- Avoid… Product Owner Team as separate analysis group 236
- Try… Write customer-centric requirements (PBIs) 236
- Avoid… Technical task ‘requirements’ (PBIs) 237
- Avoid… Technical task PBIs in team-level “Product Backlogs” 238
- Try… Ask, “Would users understand every PBI?” 238
- Try… Prefer goal-oriented over solution-oriented requirements 238
- Try… Requirements workshops 240
- Avoid… Using computers in workshops 241
- Avoid… A large queue of well-analyzed, finegrained PBIs 242
- Try… Maintain only a small queue of fine-grained PBIs 242
- Try… Requirements workshops for Product Backlog refinement 243
- Try… Specification by example—usually in tables 245
- Try… Joint requirement workshops 246
- Try… Stop refining an item once it is fully INVESTed 247
- Try… Split Product Backlog items (such as stories) 247
- Try… Ask, “What benefit from splitting in this way?” 250
- Avoid… Adopting user stories because they are ‘agile’ 266
- Avoid… Believing *writing* user stories means *user* stories 266
- Try… Apply user stories with card, conversation, confirmation 266
- Avoid… User stories good; other models bad 267
- Try… Learn *many* analysis skills: user stories, use cases, … 268
- Try… Explore requirements as automated tests 271
- Try… Prefer PBI titles in C-style user-story format—usually 271
- Avoid… Requirements management and ALM tools—for N years after agile adoption 273
- Avoid… Old-style, centralized, and hierarchical document tools 274
- Try… “Web 2.0” decentralized, networked tools 275
- Try… Baseline and version-control in your “Web 2.0” tools 275
- Avoid… Requirement information in email 276
- Try… Aggregate email and discussion threads on webpages 276
- Try… RSS feeds on requirement page changes 276
- Try… Multiple page labels for a requirement page 276

Design & Architecture

- Try… Think ‘gardening’ over ‘architecting’—Create a culture of living, growing design 282
- Try… Design workshops with agile modeling 289

- Try… Just-in-Time (JIT) modeling; vary the abstraction level 295
- Try… Design workshops each iteration 295
- Try… A couple of days to a couple of weeks of design workshops before first iteration 296
- Try… Design workshops in the team rooms 297
- Try… Joint design workshops for broader design issues 298
- Try… Technical leaders teach at workshops 299
- Try… Architects and system engineers are regular (feature) team members 300
- Avoid… System engineers and architects outside of regular feature teams 300
- Try… Serious attention to user interface (UI) skills and design 300
- Try… UI designers in regular (feature) teams 300
- Avoid… UI designers in a separate UI design group 300
- Try… Architectural analysis *before* architectural design (repeat) 301
- Try… Question all early architectural decisions as final 301
- Avoid… Conformance to outdated architectural decisions 302
- Try… Hire and strive to retain master-*programmer* 'architects' 302
- Avoid… Architecture astronauts (PowerPoint architects) 302
- Avoid… "Don't model" advice from extremists 303
- Try… Prototypes in a *different* language 304
- Try… Very early, develop a walking skeleton with tracer code 305
- Try… Incrementally build 'vertical' architectural slices of customer-centric features 305
- Try… Do customer-centric features with major architectural impact first 307
- Try… Architects clarify by programming spike solutions 308
- Avoid… Architects hand off to 'coders' 308
- Try… Tiger team conquers then divides 308
- Try… SAD workshops at end of "tiger phase" 310
- Try… Agile SAD with views & technical memos 310
- Try… Back up "human infection" with an agile SAD workshop 310
- Try… Technical leaders teach during code reviews 312
- Try… Experts participate in ongoing design workshops rather than late approval reviews 312
- Avoid… Approval reviews by experts at the end of a step 312
- Try… Design/architecture community of practice 313
- Try… Show-and-tell during workshops 313
- Try… Component guardians for architectural integrity when shared code ownership 314
- Try… Component mailing lists 314
- Try… Internal open source with teachers—for tools too 315
- Try… Configurable design for customization 315
- Avoid… Branches for customization 315
- Avoid… Create 'designs' and then send them for offshore implementation 316
- Try… Architectural and design patterns 316
- Try… Promote a shared pattern vocabulary 316
- Try… Test on the old hardware as soon as possible 317
- Try… HTML-ize and hyperlink your entire source code, daily 317
- Try… Lots of stubs, plus dependency injection 318
- Avoid… Using stubs to delay integration 319
- Try… Test-driven development for a better architecture 319
- Try… Dependency injection framework 320
- Try… Use an OS abstraction layer 320
- Try… Create a low-level hardware abstraction layer (HAL) API 320
- Try… Create a mid-level object-oriented HAL 321
- Try… Create simulation layers for hardware, etc. 321
- Try… More FPGAs and fewer ASICs 322
- Avoid… Big upfront interface design 324
- Try… Start with some weakly-typed interfaces, then strengthen 324
- Try… Simplify interface change coordination with feature teams 326
- Avoid… Freezing interfaces 327
- Try… Wrap calls to remote components with proxies or adapters 327
- Try… Start with indirect interaction between major components, then replace as needed 327

Legacy Code

- Avoid… Fixed content with unrealistic deadlines 335
- Try… Transparency and customer collaboration 337
- Avoid… Hiring many weak developers 339
- Avoid… Believing universities teach development skills 340
- Try… Increase organizational support for learning development skills 340
- Try… Support more self-study 341
- Avoid… Trivializing programming 341
- Try… Raise awareness of the negative impact of legacy code 342
- Avoid… Rewriting legacy code 343
- Try…Clean up your neighborhood 346
- Try… Write both high-level and unit tests 346
- Try… Rewrite lethal legacy code 347

Continuous Integration

- Avoid… Believing CI is a tool 352
- Avoid… Large batches of changes 355
- Avoid… Process preventing developers from checking in 357
- Avoid… Branching 358
- Try… Speed up the build 361
- Try… Add new hardware to speed up the build 362
- Try… Parallelize the build 362
- Avoid… Using ClearCase 362
- Avoid… Treating test code differently than production code 364
- Try… Multi-stage CI systems 364
- Try… A mix between feature and component CI systems 365
- Avoid… Manual promotion 365
- Try… Visual management with CI 367
- Try… Add red-green screens to your CI system 368

- Avoid… Large changes 369
- Avoid… Leaving obsolete interfaces in your code 369
- Avoid… ‘Solving’ organizational problems with technical solutions 370

Inspect & Adapt

- Avoid… Adoption with top-down management support 374
- Try… Adoption with top-down management support 375
- Try… Individuals & interactions over processes & tools 376
- Try… Job and personal safety (not role safety) 376
- Try… Patience 378
- Avoid… Adopting “do agile/lean” 378
- Avoid… Being agile/lean without agile/lean practices/tools 379
- Avoid… Agile/lean transformations or change projects 380
- Try… Agile/lean adoption *forever 381*
- Try… Impediments service rather than change management 381
- Try… Human infection 385
- Avoid… Agile/lean adoption targets or rewards 385
- Avoid… Competitive ‘improvement’ 386
- Avoid… Try… ‘Easy’ agile or lean adoption 386
- Try… Experiment rather than improve 387
- Avoid… Forcing adoption of practices 387
- Try… Encourage experiments; offer coaching 387
- Avoid… Adopting <X> because “agile didn’t work here” 388
- Avoid… IBM/Accenture/… agile adoption 388
- Avoid… Adopting agile with “agile management” tools 389
- Try… Transition from component to feature teams gradually 391
- Avoid… Waiting for the organization chart 393
- Avoid… In-line ‘ScrumMaster’ line- or project managers 393
- Try… Line manager as ScrumMaster of out-of-line team 393
- Try… Break the walls—team areas with whiteboards 394
- Try… Two-week iterations to break waterfall habits 394
- Try… One flip chart for tasks of one Product Backlog item 395
- Try… Repeating large-audience introductions 397
- Try… Open-Space Technology for early-days adoption 398
- Try… Big gatherings to share stories & experiments 398
- Try… Central coaching group 399
- Avoid… Central coaching group with formal authority 399
- Try… Concentrate the coaching on a few products 399
- Try… External agile coaches 399
- Try… Pair external agile coaches with internal ones 400
- Avoid… Advisors/consultants who are not hands-on coaches 400
- Try… Structured intensive curriculum for all teams 401
- Avoid… Internal agile/lean cookbooks 401
- Try… Joint Sprint Retrospectives 403
- Try… Joint Retrospective big improvements in Product Backlog 404
- Try… Cross-team working agreements 405
- Try… Joint Sprint Reviews 405
- Avoid… Try… Individual team-level Sprint Review 406
- Try… Spend money on improving, instead of “adding capacity” 406
- Try… Lower the waters in the lake 407
- Avoid… Rotating the ScrumMaster role quickly 408
- Try… Reduce harm of policies that cannot yet be removed 408

Multisite

- Try… Fewer sites 414
- Try… Think ‘multisite’ even when close 415
- Avoid… Believing in multisite Daily Scrum magic or that multisite forces are inconsequential 415
- Avoid… Thinking ‘distributed’ must mean ‘dispersed’ 416
- Avoid… Thinking distributed pair programming is required 416
- Try… One iteration (Sprint) for the product, not for the site 417
- Avoid… Sites organized by components or functions 417
- Try… Allocate a whole feature to a co-located feature team 418
- Avoid… Dispersed groups or ‘teams’ 419
- Try… A dispersed feature ‘team’ only if it really hurts 420
- Try… Gradual transition to co-located Scrum feature teams 421
- Try… Temporary co-location of a new dispersed team 422
- Try… Learn at existing sites, rather than add ‘expert’ sites 422
- Try… Prefer co-location of feature teams and Area Product Owner of one requirement area… but do not restrict this 423
- Try… Treat all sites as equal partners 423
- Try… Continuous integration in “one repository” across sites 424
- Try… Seeing is believing—ubiquitous cheap video technology and video culture 425
- Try… Include diverge–converge cycles in large video meetings 428
- Try… Start early multisite video meetings informally 428
- Try… Multisite planning poker (estimation poker) 429
- Try… Multisite Open Space to replace Scrum of Scrums 430
- Try… Experiment with multisite Scrum meeting formats and technologies 431 Try… Cross-pollination 432
- Try… Welcoming committees and buddies 433
- Try… Multisite communities of practice (CoP), including a communications CoP 433

- Try… Retrospectives at several levels 433
- Avoid… ScrumMaster representing the team 434
- Try… ScrumMasters acting as and encouraging matchmakers 435
- Try… Improve multisite design with Design chapter tips 435
- Try… Basic practices for multisite meetings 435
- Try… Vigilance for shared agile vocabulary and concepts 437
- Try… Cultural education 437
- Try… Vigilance about a common coding style 438
- Try… Multisite tool that records audio or video 438
- Try… Tablets for shared sketching 439
- Avoid… Commercial 'agile' tools for multisite collaboration 439
- Avoid… Commercial development tools; use free tools 440
- Try… Wikis as your share point; employ a Wiki-Gardener 440
- Avoid… ClearCase for multisite continuous integration 441

Offshore

- Try… Educate that agile offshore is not just short iterations 446
- Try… Agile guide for sales people and prospects 448
- Try… Kickoff agile workshop to educate customers 448
- Try… Remove barriers between offshore team and onshore client 450
- Try… Matchmakers rather than intermediaries 450
- Avoid… Single point of contact 450
- Try… Seeing is believing—video sessions 451
- Try… Remote Sprint Review 454
- Try… Seeing is believing—client visits team 454
- Try… Team members visit client 455
- Try… Rotating ambassadors 455
- Try… Translator on team 455
- Try… Offshore team speaks English 456
- Try… Clients participate in a Sprint Retrospective 456
- Try… Offshore group first does several iterations onshore 457
- Try… Proactively find and educate an onshore Product Owner 457
- Avoid… Believing 'yes'; ask open questions 458
- Try… Offshore requirement workshops each iteration 458
- Try… Offshore domain and vision workshop 460
- Try… Requirements documentation adaptively 'simple' 461
- Try… Frequent onshore UI prototypes 461
- Try… Semi-detailed requirements documentation for iteration 462
- Try… Detailed requirements with A-TDD 462
- Try… Wiki for all requirements 462
- Try… A-TDD for UAT 463
- Try… Manual (if you must) UAT each iteration 463
- Try… Manual pre-UAT after each feature 464
- Try… Iterative requirements onshore to offshore 465
- Try… Stable offshore Scrum teams 466
- Try… Simple titles map to special titles 467
- Try… Encouraging the teams to say 'no' 467
- Try… A ScrumMaster intent on self-organizing teams 468
- Try…Long-term agile coaching group if high attrition 468
- Try… Outside-the-site agile coaches 469
- Try… Buddy system if high attrition 469
- Avoid… Onshore management, offshore development 469
- Try… Offshoring features, not disciplines or components 470
- Try… Treating the offshore organization as internal partners 470
- Try… Dispersed feature team if us-them is a problem 472
- Avoid… Unbalanced onshore favoritism or bias 472
- Avoid… "four-year programmer" partners 473
- Try… Experts coach/review rather than dictate design 474
- Avoid… Outsourcers saying "Leave it to us, we *do agile* for you" 475
- Avoid… Outsourcers with top-heavy management 476
- Avoid… "four-year programmer" outsourcers 477
- Avoid… Outsourcers whose environment does not "walk the agile talk" 477
- Avoid… Outsourcers with analysis, coding, or testing 'factories' 478
- Avoid… Try… Large outsourcers 479
- Try… Interview outsourcer-programmers by *programming* 479
- Try… The great programmers forever 480
- Try… Improve together with your outsourcer 480
- Avoid… Believing CMMI appraisal or certification means much in creative R&D work 489
- Avoid… Believing 'agile'—or any—certification means much 493
- Avoid… Toxic CMMI consultants and appraisers 494
- Try… Alternative contract models 494
- Try… Fixed price and fixed scope with agility 495
- Avoid… Commercial tools 495

Contracts

- Try… Share these key insights with contract lawyers 500
- Try… Lawyers study agile, iterative, & systems thinking concepts 501
- Try… Appreciate a traditional lawyer's point of view 502
- Try… Debug common misunderstandings when lawyers are introduced to the third agile value 504
- Try… Lawyers study problems arising from silo mentality and lack of systems thinking 505
- Try… Lawyers study the impact of potentially deployable two-week increments on assumptions and contracts 509
- Try… Lawyers study how agility reduces risk and exposure 511
- Try… Heighten lawyer sensitivity to software project complexity by analogies to legal work 513
- Avoid… Incentives and penalties 514
- Try… Share the pain/gain 515

- Avoid… “Quality Management Plan” and “Deliverables List” 515
- Try… Collaborate early and often with lawyers 516
- Avoid…Fixed-price, fixed-scope (FPFS) contracts 531
- Try…Variable-price variable-scope progressive contracts 536
- Try…Increase flexibility in project and contract variables 538
- Try…Target-cost contracts 540
- Try…Multi-phase variable-model frameworks 543