Enterprise Scrum

Executive Summary:

Business Agility for the 21st Century

Authored, Developed and Sustained

by

Mike Beedle

Enterprise Scrum Inc.

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Release 3.4

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Secondly, I want to thank all of those of you – customers, practitioners, students, conference attendees, fellow Scrum trainers and coaches, and Certified Enterprise Scrum Trainers and Coaches:

1) For all the interesting conversations and shared insights
2) For all the unconditional support over so many years
3) For all the feedback on presentations, class materials and coaching
4) For all the questions about problems on the field over the years, and
5) For the opportunity to help you in a myriad ways to implement Enterprise Scrum in the trenches

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I hope Enterprise Scrum is useful to all present and future users seeking Business Agility and Agile Management so that they can use Scrum for:

1) in a Generic way, 2) in a scaled way, and with 3) more synergistic techniques business or otherwise.

This work would have never been completed without the support of my wife and my family. Thank you Barbara, you really deserve most of the credits!

Change Log

3.4 – Released to public on 7/10/2017. Improved Startup example, Company Management, Enterprise Scrum Overview. Added one page Enterprise Scrum Quick Reference Guide to appendix A.

3.3 – Released to public on 5/18/2017.

- Added a better Enterprise Scrum purpose.
- Added a better community-driven Business Agility Definition.
- Included Business Agility patterns.
- Added better explanation of Agile Management.
- Expanded and included a better example of Business Agility.
- Improved documenting Enterprise Scrum parameters.
- Added canvases for many other domains.
- Improved Enterprise Scrum history.

3.2 – 1/20/2017 Added and reorganized configuration parameters, and integrated them with the example chapters.

3.1 – 1/20/2017 Added Business Agility definition.

3.0 – 1/7/2017 – Added many conceptual sections and technical parameters to explain co-evolutionary and subsumption nature of Enterprise Scrum: surfer (important aspects), Cycles, waves of Cycles, etc. For example, there are now technical parameters on surfers, canvases, domain mappings into canvases and surfers and cycles. Added VLI structure, time, and action modifiers to VLIs officially. Added many cultural notes and parameters on teams. Added many other debts beyond “technical debt”. Added subsumption parameters to Cycles.

2.1 – Changed the introduction. Moved the patterns to the Enterprise Scrum Overview. Made grammar and spelling corrections.

2.0 – 11/09/2014 – Added connections to the Connected Company, the Creative Economy, Cognitive Science, Dave Snowden’s work, and underlined the importance or culture in Enterprise Scrum.

1.03 - 10/25/2014 - Added Adaptation, Improvement and Growth as part of the Piecemeal Growth pattern; which provides the fundamental basis to better understand how to achieve better business models, team and organization improvement, business transformation and product or service team scaling. Renamed all the high-level patterns. Added images. Added and reorganized the references. Highlighted empirical process management throughout and underlined

it's connections and relevance to piecemeal growth and the subsumption architecture.

1.02 - 8/4/2014 - Added more business references and linked Enterprise Scrum to them, such as Running Lean, Business Model Generation, Beyond Budgeting, Smart Tribes, Tribal Leadership, etc. Added Architecture-related parameters. Abstract 4 high-level Enterprise Scrum patterns: Scrum Team, True Business Value, Plan by Measurement, Adapt and/or Grow through Improvement Cycles.

1.01 - 4/09/2015 - Added more scaling references. Cross Functional Skill Matrix.

1.00 - 3/29/2014 - Base Definition. Enterprise Scrum naming conventions.

Business-Orientation: Multiple nested Improvement Cycles, insertion of techniques, calculations: budgets, schedules, fixed-date, risk-management, other cumulative metrics.

Genericity: business value, DOR, DOD, VLI types, Metrics and charts, generalized velocities, etc.

Scaling: meeting options, rules and participants, parent, contributors, dependOn, dependsOnUs, value list parent, global and local velocity, cumulative metrics, etc.

Contents

1. What is Enterprise Scrum?

Executive Summary

> "The purpose of business is to create and keep a customer."
> – **Peter F. Drucker**

We need Business Agility and Agile Management in the 21st Century because our well-trusted until recently 20th century management techniques – strategic planning, CXX driven, Sloan managed, department-based, phase-based processes, power/approval hierarchies, are not working all that well any more. In the 21st Century we still need to create and serve customers, but now in a world of exponentially increasing rate of change [KotterForbes]:

- Product and service lifecycles are getting shorter and shorter.
- Half of the companies from the Fortune 500 are gone since the year 2000 (Pierre Nanteme, CEO of Accenture)
- 75% of the S&P is scheduled to change in the next 10 years
- Average company lifetime was ~60 years in 1970, now it's about 30 years [BCG-DieAnotherDay]
- Business growth cycle is approaching 7 years, so re-invention has to be started every 3.5 years [Zhexembayeva]
- Unicorn valuations (1 billion or more) are achieved faster (~1.5 year in 2017 instead of 7 years around year 2000)
- More Unicorns are created every year
- The "percentage of Profit and Revenue from NEW products and services in the last 5 years" [NonakaTakeuchi] -- which we will call from now on generically **PRIG5** (Profit/Revenue Innovation Growth in 5 years), keeps growing every year. It was around 25% in 1978, but now is 50% on the average.
- 93% of US multinationals are undergoing a company-wide transformation [KPMG]

Figure 1. Half of the companies in the Fortune 500 are gone since the year 2000

And as a consequence:

> ***Wealth has never been created, transformed or destroyed at a faster pace than today.***

Faster change creates opportunity for those companies with higher Business Agility, that can continue to delight customers with fast efficient innovation and adapt quickly despite rapid changing markets, technologies, or social changes. But for those that can't innovate or adapt fast enough, or accurately, the future looks dismal. To compete in the 21st Century, a company has to adapt and innovate faster than ever. This means that companies must do more **disruptive innovation,** rather than sustaining innovation – improving old products, or seek more operational efficiencies – reducing costs.

This environment defines what I have been calling the **Innovation Revolution –** an era in business driven by competition through innovation and faster more efficient adaptation of existing markets, technology and social changes, that has violently crept on us in the last 30 years or so. Simply said, we live in an innovation warzone where companies outcompete each other through innovation for survival.

Business Agility

We therefore define Business Agility as:

"Business Agility is the ability to adapt quickly and effectively to all forms of change to deliver maximum value and customer experience."

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Greg Kramer	Ilja Vishnevski
	Rick Waters

Where adapt is "collaborate, effect, experiment, innovate, lead, learn, manage, and organize itself"; and change is "customer, market, regulation, social, technology, and changes". Also, we prefer to have purposeful and sustainable Business Agility.

As such, Business Agility includes:

- Agile Culture/Mindset – a new set of agile values and attitudes about what is important at work
- Agile Leadership – a new way to lead organizations into the future based on agile thinking
- Business Agility Patterns – a new set of patterns that lead to business agility
- Agile Management – a new way to manage based on agile principles

- Modern Business Techniques – advanced business and technical techniques that compliment agile management: Lean Startup, Blue Ocean Strategy, Beyond Budgeting, Zone to Win, Exponential Organizations, Design Thinking, Business Model Generation, Profit Patterns, Management 3.0, Cynefin, etc.
- NEW Technology – AgriTech, FinTech, InsureTech, MediaTech, MarketingTech, EnergyTech, MaterialTech, Genomics/Proteinomics, Biotech, PharmaTech, HealthTech, new technologies
- NEW Business Models
- NEW Organizational Designs

Innovation Revolution

The Innovation Revolution, as I define it, is different but related to The Creative Economy [CreativeEconomy], which is increased economic activity due to creative work, like in music, movies, books, and inventions, etc.; or even the Third Wave, the internet of everything as Steve Case defines it [ThirdWave]. Instead, the Innovation Revolution means that every company in every industry - not just those involved in creative work, ***needs to innovate, adapt and reinvent itself faster and more efficiently to stay thrive and survive***.

I have been talking and lecturing on this Innovation Revolution since 2009 but others are having similar thoughts. For example, the WEF (World Economic Forum) recently announced that we are entering what it calls the *The 4th Industrial Revolution* [4thIndustrialRevolution].

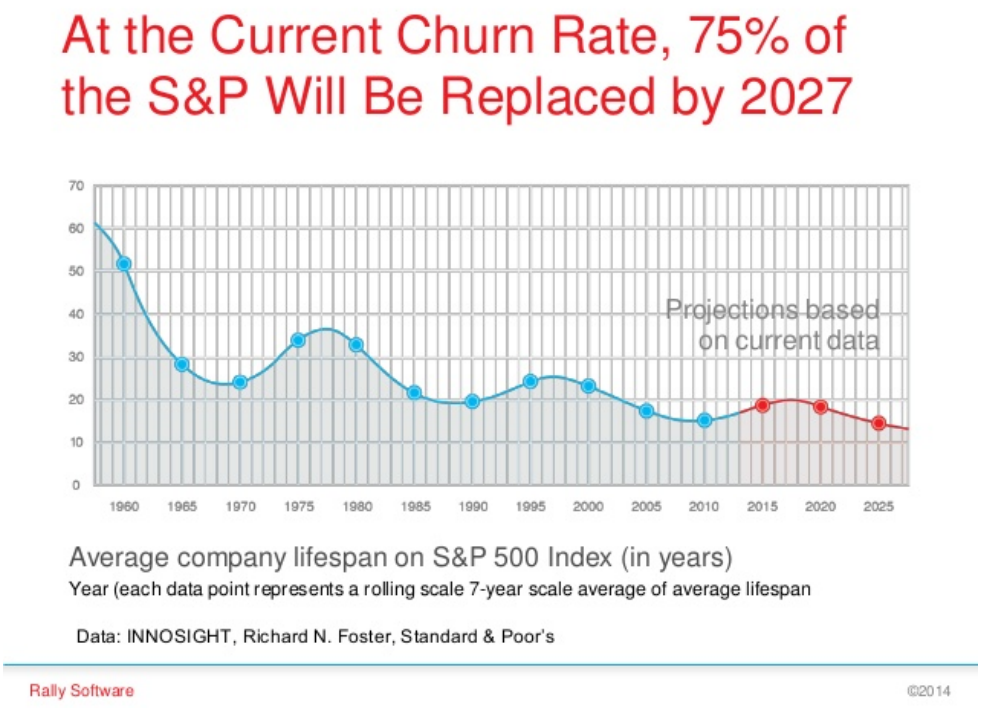


Figure 2. S&P lifetime projections (source INNOSIGHT)

Faster Change

John Kotter, which wrote the book *Leading Change* [LeadingChange], has concluded

that the rate of change in business is not only growing, it is growing exponentially [KotterForbes]. Evidence for this argument, he says, is for example, *shorter product and service life cycles* and therefore the need for faster and effective more agile management, business agility and agile innovation. Traditional management methods, such as Sloan management, process management, or product or service-oriented management based *on phased long-term defined processes* can no longer be used effectively because these management methods assume that there is little or no change. Instead, when we have open systems – more information coming in at all times, we need a different type of management – agile management.

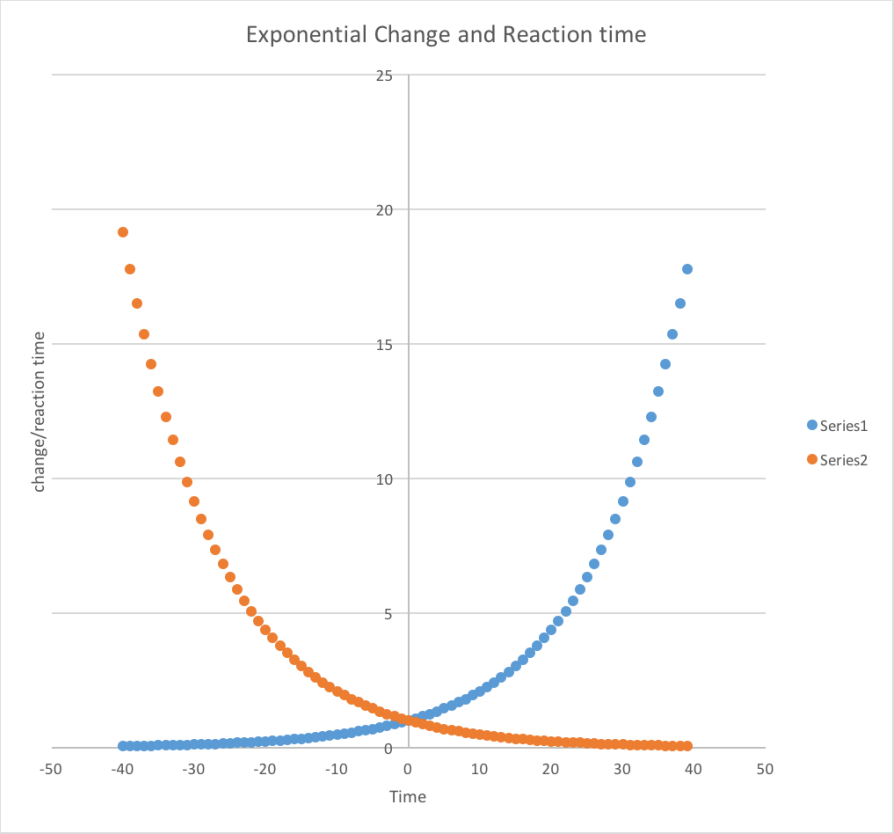


Figure 3 Exponential Change means Exponential smaller reaction time

Growing Percentage of Revenue and Profit from NEW products and services

When Nonaka and Takeuchi wrote their paper first describing Scrum, *The NEW new Product Development Game* [NonakaTakeuchi], the percentage of profit and revenue for products invented in the last 5 years was measured in 1978 to be 28% on the average, with a prediction of 33% in 1986. But these numbers keep getting higher every year. In *Best Practices in Product Innovation: What Distinguishes Top Performers* in 2011, Cooper, Edgett and Kleinschmidt [CEK], point to an average of 45% of profit and revenue come from products and services invented in the last 5 years (projected from their numbers), and of 70% of profit and revenue come from products and services invented in the last 5 years for the top 20% performers (projected from their numbers).

This means that if your company stops innovating today, it will lose on the average 45% of its profit and revenue, and 70% in more competitive industries.

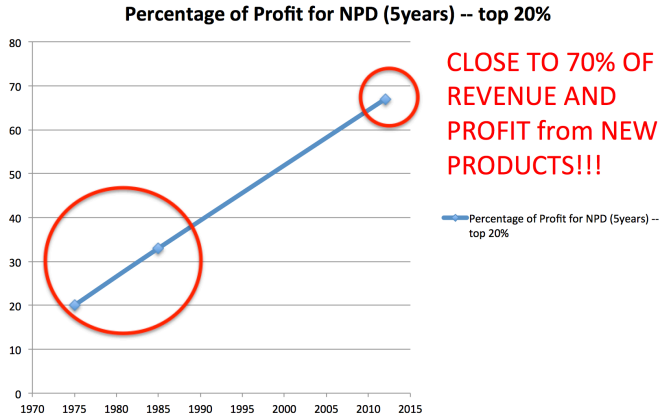


Figure 4. Revenue and Profit for top 20% competitors from NEW products in 5 years

Maximizing Stock Value through Disruptive Innovation

Everyone's goal is to make a company profitable, but because of the higher rate of change and the **PRIG5 ratio** described above**,** companies cannot maximize stock value today the way they used to maximize stock value in the past: by cutting cost or selling more of the same stuff. Instead, they need rebalance and rethink their portfolios, and generate more revenue from **NEW *disruptive innovation,*** without assuming that sustaining innovation or operational efficiencies alone will make them successful [NonakaTakeuchi], [CEK], [Christenssen], [Kanter], [Kaplan].

The consequences of Faster Change

The consequences of the increasing exponential rate of change on a business in a competitive environment are very many:

- **Process More Information and Decide Faster.** As company managers, we have much more changing market information (competitors, suppliers, technology, etc.) to process in a shorter time. So important decisions must be taken much faster. Since the amount of information and change are growing exponentially; then we have an exponentially shorter reaction time to adapt, decide and learn. We need to live with the fact, that we now live in a more uncertain world, where may have to "change our minds" and "make more corrections on the go".
- **Innovate and Delight Faster.** Despite the rapidly changing environment, we need to develop a good coherent vision of what the customer wants or needs and bring NEW products and services that can delight them faster to market, and adapt as the customer changes.
- **Fast and Effective Adaption to Change.** Despite the higher amount of changing information, we must adapt quickly and effectively making the right

decision, to any important changes to compete or survive, regardless of the source of those changes: market, competition, technology, regulatory or internal changes.

- **Shorter Plans and Predictions.** With the larger amount of information and change we also have exponentially shorter predictable time horizons. That doesn't mean we should plan long term, we can and should plan long-term. But what we cannot do, is stop making adjustments to our plans in any time horizon.
- **Sharper Competition.** A rapidly changing business environment leads to stronger sharper competition – products and services either make it or break it faster with an ever-decreasing product and service lifecycles. In this environment, you are already dead out of the competition if you can't produce NEW products and services; but to make it even more challenging, innovation must be on target and produced with higher efficiency.
- **Process Feedback Faster** We must process all feedback faster: Customer Feedback, Market Feedback and Technology changes.
- **Accurate Timeframes** We need to have more certainty in development timeframes, because time-to-market is so ever so important, but compromising by varying scope since everything tends to change more: markets, competitors' offerings, customer needs, technology, etc.
- **Better Portfolio Management** As competition stiffens, we need better and faster managed portfolios of business units, customer segments, and products and services, so that we can cut down anything that is not as profitable, obsolete or non-competitive.
- **Experiment More and Succeed or Fail Fast** Another one of the consequences of faster change is that there is less certainty in being successful. In fact, the times where we so-proudly boasted "we never failed", are gone. In a less certain environment, our products and services may need to either succeed or fail faster – because there is little or no pay off with either late or unneeded products or services. We simply can't afford to get too stubborn on a failing business idea, product, or service.

NPE == New Product Efficiency

There is also a wide gap among players within an industry. Arthur D. Little which defines NPE (New Product Efficiency) as New Products Sales divided by R&D investment, in their *Innovation Excellence Study* [ArthurDLittle], reveals that the best innovators are 12X more productive. **This means "efficient innovators" get twelve times more sales for the same R&D investment.**

But because of a larger PRIG5, as we saw above, **NPE is critical to the company success**, because the world has turned into an innovation competition within every industry and market segment, and companies not only need to innovate fast – they also need to innovate efficiently.

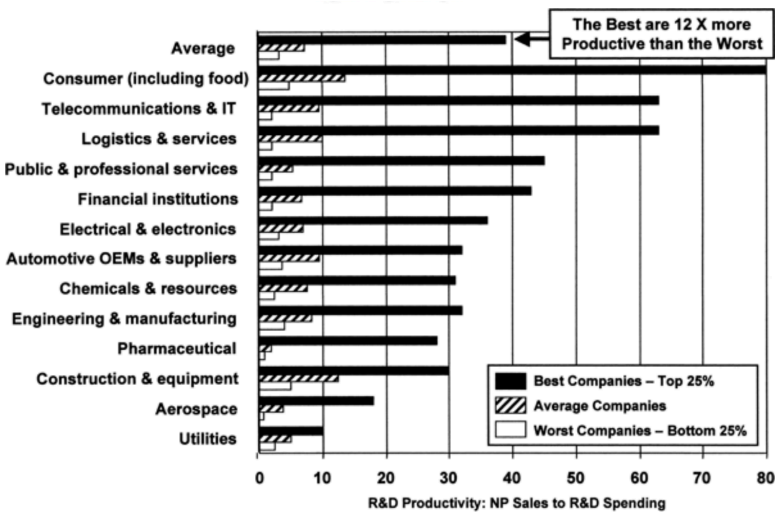


Figure 1 .— NPD productivity varies greatly among companies, with huge differences between the best and worst Companies in each industry. Source: A. D. Little Innovation Excellence Study (5). Source: A.D. Little Innovation Excellence Study (5).

Figure 5. New Product Efficiency by Industry

What are the consequences of this gradient in NPE?

- **Larger NPE** can mean a combination of better sales, faster innovation or less expensive innovation. But either way, winners profit more with lesser investment.
- **Larger NPE can be achieved anywhere in the business lifecycle**: strategy, marketing, product and service development, technology, sales, or customer feedback. But also, any "stage" can be the bottleneck; therefore, some companies have opted to remove bottlenecks by doing ***all-at-once innovation and business management*** i.e. deploying testable business models [BusinessModelCanvas], instead of following a phase-based approach. We will see that this is one of the key patterns of Enterprise Scrum, Business Agility and Agile Management.
- **Winners often get larger market share faster** market share is not necessarily a measure of profitability but is still a measure of competitive advantage [ProfitZone].
- Because everything changes faster, *we can think of a company not being just managed, but of a company being developed.* This is also a key concept in Enterprise Scrum – the more change, the more activities look like development activities [Blank].

Agile Management and Business Agility

Business Agility

Given our conclusions from the 1) exponential rate of business change, 2) the PRIG5, and 3) the New Product Efficiency sections, one clear picture emerges:

> ***To successfully lead our companies in the 21st century, we need Business Agility.***

And this is what Enterprise Scrum provides – a way to agilize everything within a

company:

> ***The focus of Enterprise Scrum is to give a company, or any part of it Business Agility.***

Enterprise Scrum means Scrum applied to any part or the enterprise as a whole, so it means continuously reinventing, improving and adapting the company and everything it does. There is a deeply rooted explanation of this that we will examine in detail in the next sections: Enterprise Scrum is subsumption-based empirical business management at any level, for any structure, which is the foundation of Business Agility and Agile Management.

Some companies have already started to practice and write about this new style of management. For example, Salesforce.com uses a style of management that eerily resembles Enterprise Scrum. Also, Steve Deming – a former Scrum Alliance board member, wrote the book *Radical Management* [RadicalManagement], clearly pointing into this direction.

Agile Management

Agile Management is a style of management where deliver something of value to the customer e.g. a product, service or business model; and then when we get feedback from the customers, we can *change anything that is important to improve the value and customer experience to them*.

For example, if we are delivering business model to the customers involving a mobile app and a service, when we get the feedback from the customer we can change:

- The business model – business model pattern
- Marketing – messages, campaigns, channels, relationships, etc.
- Sales – closing, payment options, terms, guarantees, contracts, etc.
- Products or Services – features, quality, levels of service, processes, etc.
- Order Fulfillment – distribution, delivery, packaging, etc.
- Customer Service – maintenance, support, availability, etc.
- Etc.

Disruptive Waves

The world is now under the effect of very many disruptive waves approaching every industry and every sector in every industry:

- AgriTech,
- Biotech,
- EnergyTech,
- FinTech,
- Genomics/Proteinomics,
- HealthTech,
- InsureTech,
- MarketingTech,
- MaterialTech,
- MediaTech,

- PharmaTech,
- Retail
- Tech (IoT, VR, AR, AI, Robots, 3D printing, drones, IT, etc.)
- TelecomTech

Technology alone is not the only change, there are also major waves of change from social changes, regulatory, and market changes; although, yes, they are all interrelated.

In fact, we can see that over the last 100 years, the adoption rates of technology continue to increase to record shorter times.

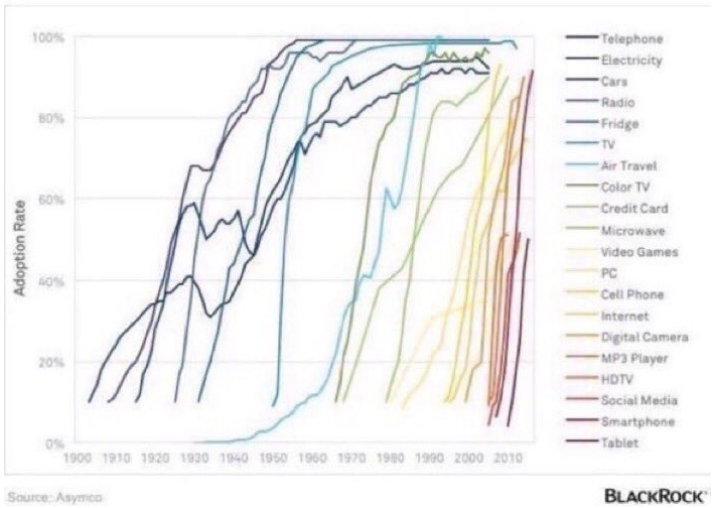


Figure 6. Adoption Curves

Higher Industry Uncertainly

The uncertainty may vary per industry and by business process, but it is increasing to new highs every year. In fact, we can see from the chart below that some of the revenue volatility is very high across the board. This is understandable from the perspective of the existing and upcoming disruptive waves in the world today – and it's only going to get worse. Although there are other factors depending on the industry, a large percentage this industry volatility is correlated to "inventing the right new products and services for an ever-more demanding customer".

INDUSTRIES RANKED BY LEVEL OF UNCERTAINTY

	INDUSTRY	R&D OF SALES	REVENUE VOLATILITY	FIRM TURNOVER*
1	Medical equipment	8.2%	90.7%	13.1%
2	Computers	5.8	98.8	12.0
3	Computer software	9.8	69.9	14.4
4	Pharmaceutical products	17.4	63.3	12.7
5	Measuring & control equip.	9.3	97.0	8.8
6	Machinery	3.2	100.5	9.3
7	Agriculture	10.8	123.3	4.9
8	Electronic equipment	5.2	61.5	10.5
9	Chemicals	3.0	71.2	9.2
10	Electrical equipment	9.8	35.0	9.2
24	Business services	3.2	46.2	6.5
40	Business supplies	1.4	34.8	5.0
41	Shipping containers	0.5	65.1	4.9
42	Real estate	1.3	57.6	3.0
43	Beer & liquor	2.3	12.8	3.7
44	Personal services	0.3	59.7	4.4
45	Tobacco products	1.0	20.3	5.2
46	Insurance	2.2	30.4	0.9
47	Wholesale	0.1	14.1	6.3
48	Utilities	0.2	45.6	0.2
49	Precious metals	0.1	40.7	1.5

*PERCENTAGE OF (ENTRANCE + EXITS)/TOTAL FIRMS IN THE INDUSTRY PER YEAR. **SOURCE** COMPUSTAT 2013

HBR.ORG

Figure 7. Industries by uncertainty

Change Source by Process Type

But where is the most change and uncertainty coming from in an enterprise? Change is everywhere, and it can come from very many different directions, but where does the most critical change come from? The systems thinking answer or process answer to this question is: from business processes that are **open information systems**. Understanding a system from its systems thinking perspective is hard, but add to that ***change***, and things can get much more complex.

All of the processes of an enterprise can be broadly divided into: 1) production or defined processes – which are closed or almost closed information systems; or 2) development or empirical processes – which are open information systems.

Defined Processes

Defined processes, which are almost closed information systems (not much information changing while the process executes), are processes that can be changed at a slower pace; while development-like processes, which are open information systems, need faster, higher-frequency, often larger and more pointed changes in time. Defined processes execute with most of the steps known in advance, while development-like or empirical processes execute opportunistically first analyzing context and then taking action through transparency, inspection and adaptation [ProcessControlTheory].

Defined processes are processes like production, manufacturing, accounting, payroll, or traditional customer service. A manufacturing process can be changed or improved but the steps it executes in that version of the process are known in advance. Production-like processes should be optimized through **Lean Production** techniques – Lean Principles and Lean Techniques applied to production-like processes [Ohno], [Wommanck1], [Wommanck2], [Wommack3]. Most Global 5000 Companies have been optimizing their production-like processes using these techniques for nearly 30 years outside Japan, and longer in Japan.

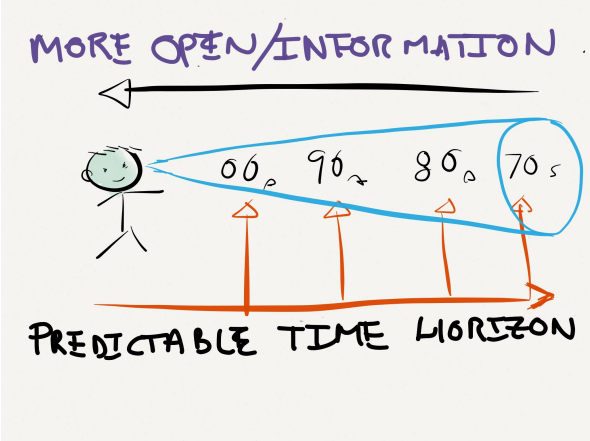


Figure 8. Development-Like processes are Open Information Systems

Development Processes

Development processes on the other hand, are processes like startup management, portfolio management, strategy, marketing, sales, compliance, finance, product/service development or R&D that can admit new information leading to new steps as the process executes. In the 21st century, these processes may even have to endure major changes even within a few days with a new partnership, a new product offering by a competitor, or a new discovery in R&D.

So in parallel to production-like processes, development-like processes should be optimized with **Lean Development** techniques.

> ***But contrary to production-like processes, development-like processes, which are the source of most of the top-line and competitive advantage to firms in the 21st century, have not yet been optimized through Lean Development techniques hardly at all.***

By the end of the 20th century, most Global companies spent most of their efforts optimizing their all of their processes seeking operational efficiency, with good results cutting costs and reducing the bottom line, assuming all of them could be treated like defined processes. This, in fact continues on today in 2016. But this is a grave conceptual mistake that can lead to many problems: development-like processes that admit NEW information cannot be managed well through defined process techniques. Instead, development processes are better managed through development-like techniques like Enterprise Scrum.

Any process instance within the enterprise that operates while receiving NEW information, is by definition of a development-style flavor – because it needs to change and adapt; and therefore it's not any more a repeatable process, and can be

better managed through Enterprise Scrum than by a defined style process management technique. A development style process instance is a process instance where:

- there is high uncertainty because NEW information is flowing into the system requiring adaptation to frequent changes (market, customer, technology, etc.).
- this information could be harder to understand as things get more complex: markets, technologies, interactions, etc.; and therefore, misunderstandings and misconceptions are easier to make.
- outputs and outcomes cannot be readily predicted in advance
- people and teams tend to change faster over time

Empirical process management assumes an **open information system**, where we must adapt as new information comes in, or as our understanding of the up-front conditions becomes better. Empirical process management is based on transparency, inspection and adaptation:

> **Transparency** – so that everything is visible and understood
> **Inspection** – so that we can determine the current state
> **Adaptation** – so that we can adapt, improve and learn

For example, the true state of a company must be **transparent**, so that we can **inspect** its current market position, and then **adapt** to improve its strategic position. Empirical process management is one the fundamental concepts for iterative and incremental improvement, adaptation and growth. The other important is subsumption – the ability to manage appropriately in knowledge layers.

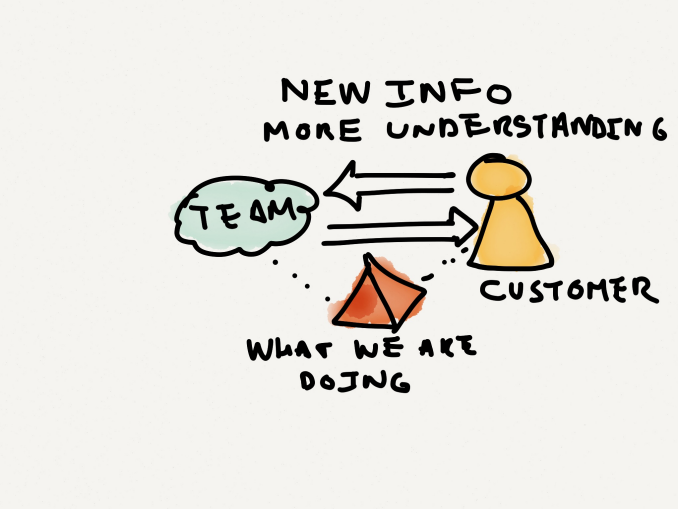


Figure 9. New Information and more understanding make Development-like processes uncertain

As such, all development-like processes, like company management, business unit portfolio, customer segment portfolio, product and service portfolio, a new or existing products or service, and even functional processes – if you are still managing by functions that is, such as finance, strategy, marketing, compliance, legal are better managed with Enterprise Scrum, rather than by traditional defined-process techniques.

> ***Companies will get competitive advantage in the 21st century by developing more top line through agile innovation, agile management***

and agile adaptation – not by "operational efficiency".

As we will see, collections of defined process instances also have an empirical flavor because of the statistics of the defined processes, so Enterprise Scrum is also a very useful framework for managing collections of defined processes and any kind of portfolios. Moreover, because business architecture or process redesign is a creative process for a given defined process, Scrum is also used effectively for business architecture and BPR (business process reengineering).

Subsumption

To make it slightly more real – pun intended, and you will see why in a second, the world doesn't operate in just "one layer of management". For example, a company may have several divisions, each with several Customer Segments, each one of which may have different products and services; and at each level, we need to do empirical process management. This is what subsumption is: managing as independently as possible the different knowledge levels based on the "reality" of the problem".

> "Reality is our model."
> – **Rodney Brooks**, inventor of the subsumption architecture

Minimizing dependencies, as usual, is one of the key Business Agility patterns – this means insolating our bets not only horizontally e.g. many products and services, but also vertically e.g. business units, customer segments, value propositions. In the language of Geoffrey Moore, we need to "zone to win" everywhere in the enterprise [ZoneToWin]. Hierarchy is not necessarily a terrible thing, because hierarchies allow us to partition and organize "zoning", what we cannot afford is too much couplings, dependencies among departments or phases, because this will cause many systemic problems and slow us down to a crawl. Therefore, Business Agility needs to be customer-centric, all-at-once, and as decentralized as possible.

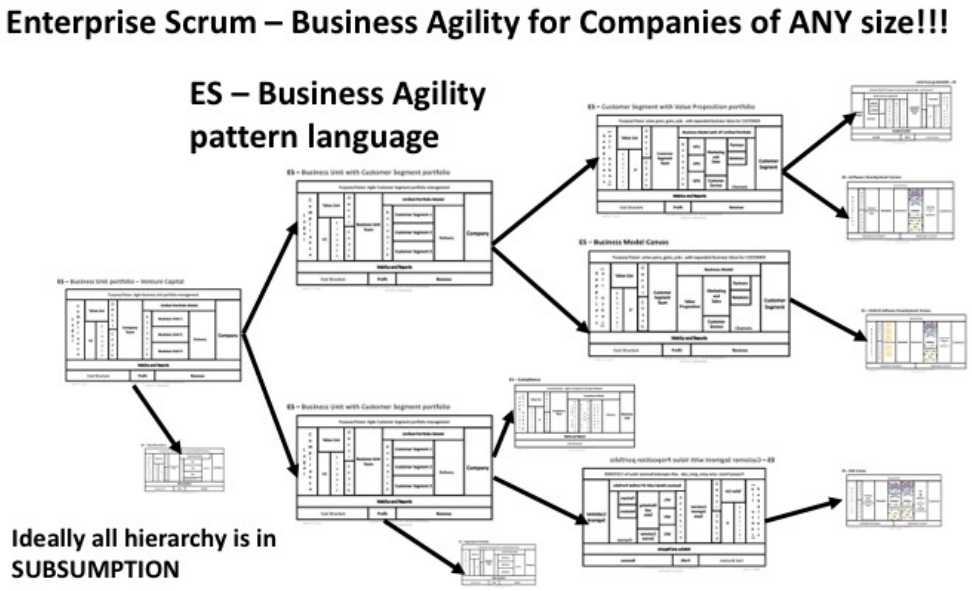


Figure 10. Company subsumption hierarchy

The Scrum Framework high-level description

Modern Scrum, as invented by Jeff Sutherland, is an empirical process management framework for ***product development –*** typically software and hardware, that delivers the most business value in the shortest possible amount of time. Because Scrum is a framework, we can insert many techniques for ***product development.*** We will not spend much time here describing basic Scrum; instead, we encourage the reader to learn Scrum by reading and studying the *Scrum Guide* [ScrumGuide]. However, applying Scrum to other things like company management, startups, marketing, financial trading, portfolio management, is hard, because custom ad hoc adaptations must be made. People in the trenches have "winged it' and made these adaptations in the trenches, and it is by gathering this experience that we have derived Enterprise Scrum.

Enterprise Scrum Framework high-level description

The purpose of Enterprise Scrum is to help creating great companies, with great purposes, with happier customers, happier employees, that can grow faster, learn faster and transform faster into whatever they need to be. In other words, the goal of Enterprise Scrum is to make Business Agility possible.

The more business definition is what is bolded:

> ***Enterprise Scrum is a framework to deliver the most business value in the shortest amount of time while balancing the benefits for all people involved.***

We define Enterprise Scrum in full to be:

> ***Enterprise Scrum is a*** *customer-centric, co-evolutionary, empirical, subsumption-based management* ***framework to deliver the most business value in the shortest amount of time while balancing the benefits for all people involved****, based on an abstraction, generalization, extension and parametrization of Scrum for generic, business, technique-pluggable, and scaled management purposes.*

Let's explain this a little bit.

- Enterprise Scrum is a **co-evolutionary** because we coevolve everything that is important simultaneously. For example, in a startup we coevolve, the customer, the team, the product or service, the financials, the channels, the relationships, etc. together simultaneously. So we say that in Enterprise Scrum we coevolve the Surfers on the Canvas (all important aspects of things for different people), through waves of Cycles in subsumption mode. In Enterprise Scrum we create different canvases for different activities.

- Enterprise Scrum is **empirical,** because it is based on measurements. No, we are not interested in just productivity or profit, but instead, in everything that is important, hopefully balancing what is most important: people! For example, we can balance customer satisfaction, employee happiness, profits, and a purpose in the world.
- Enterprise Scrum is **subsumption-based** because at any level where we apply it, we require to measure the relevant reality associated with it, and manage making adjustments with the feedback of what we do from reality. For example, in startup management, if we make marketing changes or sales changes, we would use the feedback immediately from our campaigns to very quickly modify our messages.
- Enterprise Scrum is a true **framework**, meaning, there are specific parameters and techniques that we plug-in explicitly while we implement Enterprise Scrum. For example, we may specify explicitly Business Value, metrics, charts, Value List (type of work, frequency, structure, etc.), DOD, DOR, Planning type, Review type, Improve type, canvas, surfers (things that are important), subsumption levels, etc. Unfortunately, the word framework has been abused, but Enterprise Scrum is a true framework.
- Enterprise Scrum purpose is to deliver the most **business value** in the shortest amount of time to everyone involved, hopefully in balance to: customers, employees, stakeholders, and people in the world.
- Enterprise Scrum is an **abstraction** of Scrum because it better describes what Scrum is. No offense to previous people documenting Scrum – including myself, but we have not done a very good job.
- Enterprise Scrum is a **generalization** of Scrum, because it uses the same concepts in Scrum but in a more general way. For example, Scrum is a 2-level subsumption architecture, Enterprise Scrum is an n-level subsumption architecture. Scrum parametrizes Sprint length, Enterprise Scrum parametrizes 130+ other things
- Enterprise Scrum is an **extension** of Scrum, because it adds many things that were not there in Scrum either explicitly or not there before. For example, Scrum did co-evolve development type of activities like requirements, architecture, code, tests, plans, but it didn't say that explicitly. On the other hand, Enterprise Scrum can co-evolve anything that is important together – but that's something that wasn't there in Scrum before.
- Enterprise Scrum is **parametrization** of Scrum, because it adds parameters to explicitly track things. For example, Cycle length, DOR, DOD, etc. and 130+ other things that are important.
- Enterprise Scrum is management in a **generic** way, because it can work for any purpose, at different level or knowledge domain of the organization. For example, executive, middle management, program, project, and for different purposes and business process, for example, company management, startups, business unit portfolio, customer segment, business model, marketing, sales, product development, software development, research, compliance, etc.
- Although Enterprise Scrum can be applied to anything, for example, managing a soccer team, or doing projects for college students, or improving the classrooms for elementary school students, the main driver for it has been in **business.**

- Enterprise Scrum is technique-pluggable, because we can insert explicitly **techniques** from different domains. For example, in Enterprise Scrum we can use explicit techniques like Lean Startup, Design Thinking, Business Model Generation for company management; or User Stories, Release Planning, or UTDD for software development; or Internal Controls for compliance management,
- Enterprise Scrum has the necessary constructs to be **scaled** in different collaboration and structural modes.

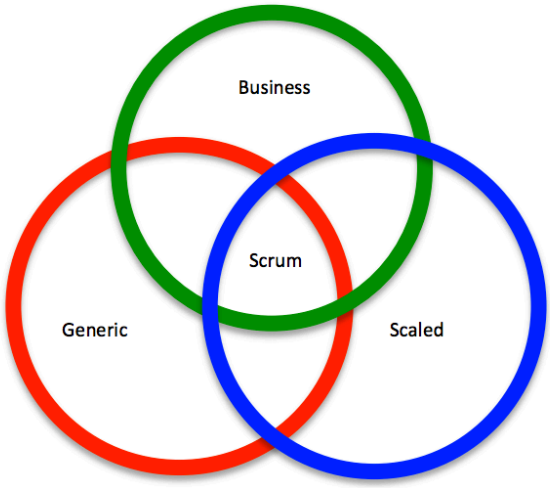


Figure 8. Enterprise Scrum: business-like, generic, scaled Scrum

Brief history of Agile and Scrum

Agile

In business, the origin of the use of the word Agile, started with the creation of the Agile Consortium and the publication of *The 21 Century Manufacturing Enterprise Strategy* in 1991 [Nagel1] and described in detail in the book *Agile Competitors and Virtual Organizations: Strategies for Enriching the Customer* [AgileCompetitors]. However, the position of these business pioneers was that there was no true guidance or patterns, on organizational structure, processes, culture, roles or anything else. That companies should adapt to whatever makes sense.

However, some of us that worked in the trenches re-engineering organizations and processes thought differently. I specifically wrote the paper "cOOherentBPR: A pattern language to build Agile organizations" [Beedle-cOOherentBPR-1997] as a rebuttal to [AgileCompetitors], because my experience differed significantly: there are much more Agile organizational structures than others. True Agile organizations use compressed processes, not phases or departments. Inadvertently, I created a new style of Agile for business management that was all-at-once, based on both my knowledge of reengineering and Scrum.

The Agile ideas were discovered independently in software and culminated in the

creation of the *Agile Manifesto* [AgileManifesto], but eerily have the same identical guiding principles as those in business. In fact, I proposed the word Agile at the Snowbird meeting in February 11, 2001, because what we were discussing in those 2 days, reminded me a lot of the business agility which I had worked as described above in 1997. Martin Fowler, on of the other 16 participants at the meeting in Snowbird commented: "… but if we call it Agile, we will be successful" (paraphrasing). And here we are. HBR recently published this as the "true agile story" [HBR-AgileStory].

To add a little bit to the reengineering story, in 1995, I was writing a book on Reengineering the Application Development Process, but I stopped writing because when I got to know Scrum from Jeff Sutherland, I realized that Scrum was a way to "reengineer the development process". It already provided a way to do ***all-at-once management*** of the application development process. This is one of the key patterns of reengineering, "process compression", which is a key feature of Scrum, that later got inherited by Agile in software.

It was a fortunate and lucky choice of words to choose Agile, because now the previously defined "business agility", and the newly defined "software agility" were eerily similar. There were also very many early ideas in software development that pointed out that this was a good direction. See for example, *Evo* [Gilb*], Quality Software Management* [Weinberg], *Mythical Man Month* [MMM], *Peopleware* [PeopleWare], and *Wicked Problems, Righteous Solutions: A Catalog of Modern Engineering* by Peter DeGrace, Leslie Hulet Stahl.

Scrum

The use of the word Scrum, comes to use from Nonaka and Takeuchi's HBR article *The NEW new product development game* [NonakaTakeuchi], and it was used to describe the type of development that Japanese companies started to do in the late 70s. This style of development started at Toyota, by applying TPS (Toyota Production System) techniques such as kanban, kaizen, JIT, etc. [Ohno], [Liker1], [Wommack1]; to development activities which resulted in a new way of doing development called TPDS (Toyota Product Development System) [Liker2]. Apparently, Nonaka chose this word as they watched Australian TV in Japan, and the overlapping of players in a Scrum, reminded him of the "all at once" way of doing development.

Curiously, TPS itself emerged from the TWI (The Workers Initiative) principles (Training Within Industry program) [TWI]; which was originally a program from the US to train women for work in World War II. After the WWII was over several TWI instructors including Edwards Deming were sent to Japan and Korea to help rebuild these countries.
The Toyota style of product development eventually made it into other Japanese companies, such as Honda, Fujitsu, Cannon, Panasonic, etc.; after these companies started hiring employees and consultants that worked at Toyota. The Toyota family knew about this and was very candid about it. They allow it thinking that these techniques would lead to a better world.

However, Jeff Sutherland invented what we now call "Scrum", "modern Scrum" or

"Jeff Sutherland's Scrum" in 1993 by putting together the following four concepts:

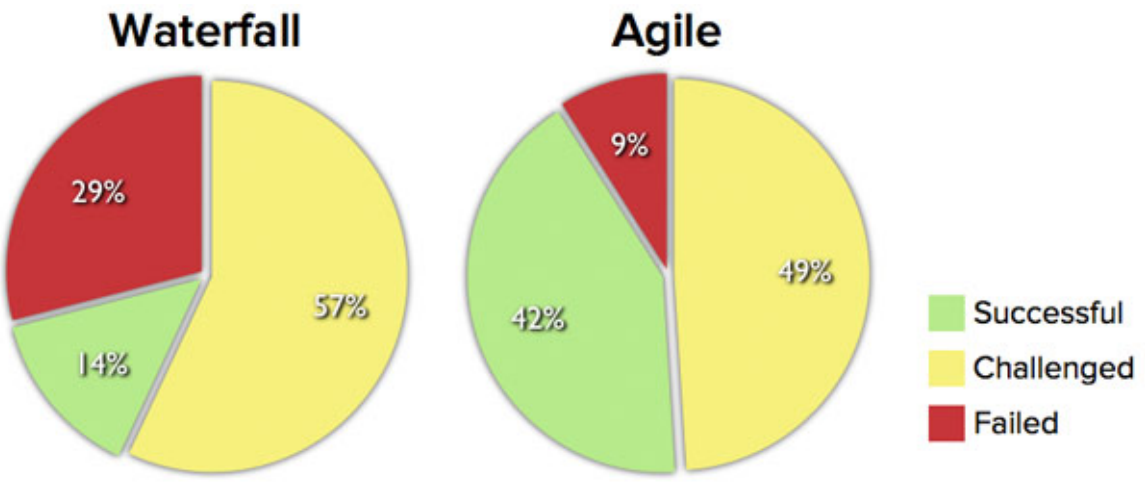
1. **Complexity Science** – Jeff is a brain/cellular researcher well-versed in these complexity science since the early 80s.
2. **Nonaka and Takeuchi ideas** explained in *The NEW new product development game* [NonakaTakeuchi].
3. **Organizational Patterns**, recurring best practices in successful teams first documented by Jim Coplien after analyzing what hyper-productive teams were doing [Coplien] [OrgPatterns], and the
4. **Subsumption Architecture**, the concepts of artificial intelligence discovered by Rod Brooks [Brooks1], [Brooks2].
5. **Empirical Process Management.** When tasked to document Scrum Ken Schwaber found another good explanation to explain Scrum through "empirical process control' [ProcessControlTheory].

Enterprise Scrum is based on all these concepts and ideas.

The first book on "modern Scrum" (and Agile) was *Agile Software Development with Scrum* [BeedleSchwaber], but now there are many other good books on the subject – it was the first book with Scrum and Agile on its title. Curiously, the proposed title of the book was "Agile Management with Scrum" at some point, but our editor told us that there was barely a market for Scrum management in software development and that there really wasn't a market for general-purpose Scrum management at the time. But even back then, in 2001, we knew Scrum was used, could be used, and should be used, for many things other than just software development. When I got the domain EnterpriseScrum.com in 2003, I was sure that this type of management would revolutionize the world one day. Well, that day has come. Others have made similar predictions. See for example Jeff Sutherland work, [Agile-3rdWave], or Radical Management by Steve Denning [Denning-RadicalManagement], [Denning-ScrumMajorDiscovery], Dan Greening's work [Greening].

As we will see, the understanding of this history will be very important to understand Enterprise Scrum, as Enterprise Scrum is a continuation of these original ideas, but now extended to any part of a company, at any level, or for the entire company as a whole.

There have been some early attempts to create frameworks for agile companies, see for example, *cOOherentBPR: A pattern language to build Agile organizations* [Beedle-cOOherentBPR-1997], or *Enterprise Architecture Patterns: Building Blocks of the Agile Company* [Beedle-EnterpriseArchitecturePatterns-1998].



Source: The CHAOS Manifesto, The Standish Group, 2012.

Figure 11. Standish Group, CHAOS Manifesto results 2012

Today we know Scrum is better than other styles of management in software development because it has a higher measured probability of success 42% vs. 14% – see for example the Standish Group's CHAOS report [StandishGroup], [StandishGroup – ChaosReport]; and we are starting to get empirical evidence that Scrum and Enterprise Scrum are better management for anything that requires a development style of management – and that's almost everything due to the rate of change in the world today.

But beware, the promise of Scrum or Enterprise Scrum management is not 100% success; it is simply a higher probability of success.

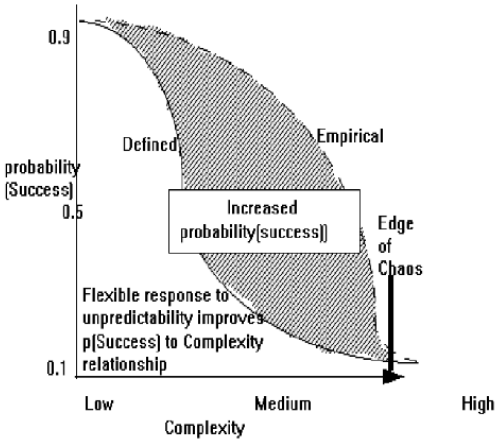


Figure 12. As complexity increases Agile Management and Scrum have a higher probability of success for any business process.

Patterns

Enterprise Scrum comes from the conclusions of observing, hearing about, discussing formally or informally, formally interviewing, consulting on, teaching, or

mentoring on in very many companies, projects, instances of Scrum in different domains and industries since 1995, where people in the trenches either had already informally customized Scrum for the purpose of doing Agile Management, or wanted to do so in the future.

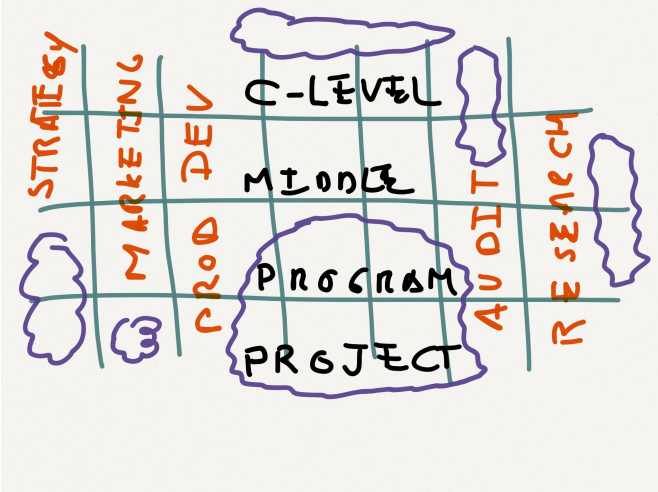


Figure 9. Scrum is being applied EVERYWHERE.

Here is a brief list of some of the early companies and projects where Scrum was first practiced in a generic, scaled or more business-like purposes:

- VMARK – senior management Scrum, 1995
- IDX – first scaled up Scrum, 1996
- Individual – scaled up Scrum, 1996
- Nike Securities, Scrum for BPR, 1997
- CVS/Caremark – scaled-up Scrum (25+ teams), 2001
- New Governance Inc. – company management, 2001
- PatientKeeper – company management, 2001

Today there are thousands of other examples like Salesforce.com, GE, Spotify, John Deere, NPR, Intronis, C. H. Robinson, ABN Amro, JP Morgan Chase, DOD, Enterprise Scrum Inc., Scrum Inc., Cars.com, Scrum Alliance, Hewitt, IBM, Standard and Poor, OpenView Venture Partners, Total Attorneys, Systematic, Trifork, Mission Bell Winery, etc. In a recent poll at the Enterprise Scrum group, we identified 38 different applications of Scrum for different domains, business processes, or activities, ranging from company management, marketing, sales, compliance, HR, finance, startups, all the way to political campaigns, asset management, and emergency management, etc.

These are the type of companies and the kind of processes, programs and projects that led to the concept of Enterprise Scrum. Jeff Sutherland gives us very many other examples in his book *Scrum: The Art of Doing Twice the Work in Half the Time* [Sutherland]. There are also very many examples in the recent HBR and Forbes articles on Agile [Denning-ExplainingAgile], [HBR-AgileStory], [HBR-EmbracingAgile], [Kniberg], etc.

There are thousands of examples in very many industries throughout most business processes, ranging from startups through Global 5000 companies. In fact, the

Scrum Alliance has recently formed the Learning Consortium, which mission is to encourage the use of this style of management [LearningConsortium].

So the process by which these patterns and parameters have been found and validated is by observing the world and mining patterns, and then applying the patterns and verifying that the patterns work in the real world [Alexander]:

- **Pattern Analysis (or mining): analyze World → get Patterns from success stories**
- **Pattern Application: apply Patterns → test success stories in the world**

Many companies, projects and processes have benefited from the application of these patterns. In my estimation, there are at least 100,000 people doing Enterprise Scrum, and possibly as many as 1,000,000 by very conservative estimates. My prediction is that in the future, this style of management will grow rapidly in adoption and that it will cause what historians will call perhaps:
- "the Agile Management Revolution",
- "the Knowledge Worker Revolution" as Peter Drucker predicted,
- the "4th Industrial Revolution" as Klaus Schwab from the WEF calls it, or
- the **Innovation Revolution**, as I prefer to call it.

Many of these patterns unfortunately have not been properly documented in the proper organizational patterns form, which follows the seminal work started by Jim Coplien back in 1993 [Coplien]. However, some of us at the ScrumPLOP working group will continue to document Scrum and hopefully Enterprise Scrum patterns in the future. We are planning to publish a book on with these patterns [ScrumPLOP].

Agile Transformation

We are now witnessing now the 3rd wave of agile coming our way: Business Agility everywhere in the enterprise. The first agile wave was "single team" in product development that started circa 2001, and the second wave of Agile was scaled agile in product development that started circa 2007. In the beginning of 2016, I still sounded like a broken record: "Guys, the big Business Agility wave is coming soon!". People would listen to me, and ask: "Where Mike, where is it?" I quickly pointed people to the known examples and case studies, but there wasn't simply enough evidence to call it a Business Agility wave. But things changed quickly. Sometime in the beginning of 2016, all of a sudden, we started to get more and more case studies, specially in financials and insurance, but quickly expanding to pharmaceuticals, manufacturing, technology, etc.

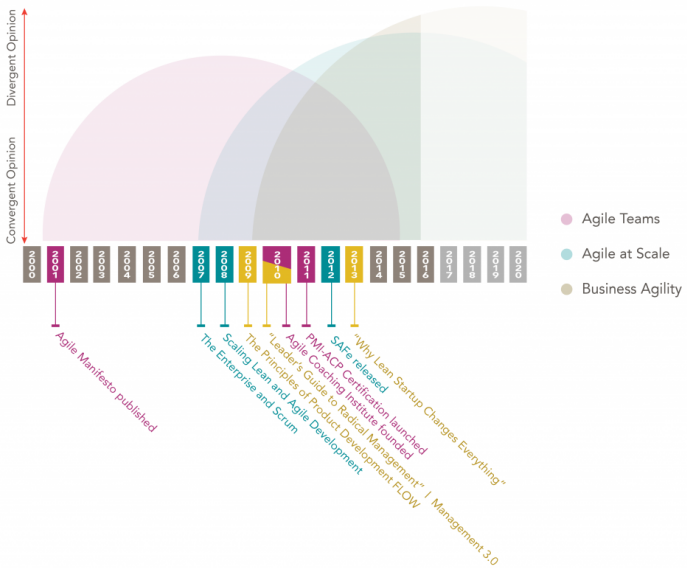


Figure 13. Agile waves: single team SW, scaled SW, Business Agility

I am now confident to say that in 2017 and the years to come, we will see Business Agility grow exponentially. In fact, we are now offering Enterprise Scrum – Business Agility classes and certifications, and the classes are filling up quickly. We are also seeing Business Agility conferences appear, for example, in 2015 there was a Business Agilty conference organized by Daniel Mezick. Also, there was a recent Business Agility conference in New York city [BusinessAgility2017].

One of the recent reports from Deloitte, says that the top executive priority right now is organizational design. Executives are desperately looking for new ways to organize their companies in a more agile way [Denning-AgeOfAgile], [Deloitte2016], [Gonzalez]. Well, help is on the way, that's exactly what we can provide with the Enterprise Scrum Framework and the Enterprise Scrum Business Agility patterns.

Additional Guidance

There is also a lot of related guidance as to how to structure, manage, and transform organizations that innovate with or without Scrum – clearly there are overlapping patterns among these techniques:

- **Agile and Scrum distribution** [DistributedScrum]
- **Agile business management -** [AgileCompetitors], [RadicalManagement], [BeyondBudgeting], [LittleBets], [ConnectedCompany], [ReinventingOrganizations], [ExponentialOrganizations], [Leybourn]
- **Architecture** [Alexander], [ConnectedCompany]
- **Business models - [**BusinessModelGeneration], [ProfitZone]
- **Cognitive Science** [Snowden-Cynefin], [Snowden-ComplexActs]
- **Culture** [TribalLeadership], [SmartTribes]

- **Digitizatioin -** [McKinsey-Digitization]
- **Good business processes** [Hammer], [Wommack2], [Wommack3]
- **Good companies** [Collins1], [Collins2], [Hamel1], [Hamel2], [Nonaka-PragmaticStrategy], [Hoshin1], [Hoshin2], [Porter1], [Porter2], [BalancedScorecard], [ToyotaWay], [Nonaka-ManagingFlow], [ScenarioPlanning]
- **Good products and services** [Coplien], [DesignThinking], [DistributedScrum]
- **Innovation** [Peters], [Pink1], [Pink2], [SchwaberSuthterland], [PowerOfScrum], [Stacey], [BlueOceanStrategy], [CEK]
- **Knowledge Management** [Nonaka-KnowledgeCreating], [Nonaka-KnowledgeCreationAndManagement], [Snowden-MultiOntology]
- **Lean Management** [Liker1], [Liker2], [Poppendieck], [Reinertsen, [Wommack1], [Wommack2], [Wommack3]
- **Scaling** [AgileSoftwareDevelopment], [Eckstein], [DAD], [Schiel], [Kniberg], [SAFe], [StoberHansmann], [Cohn3], [Schwaber], [Rawsthorne], [Schliep], [ScalingUp], [Greening], [Lefingwell], [Less1], [Less2],
- **Startup Management** [RunningLean], [LeanStartup], [Blank],
- **Teams** [Management3.0], [Atkins], [Katzenbach]
- **Transformation** [HBR-ChangeManagement], [LeadingChange], [RisingManns]

For lack of a better word I have chosen to call these techniques under the banner **Agile Management;** because whether these authors label themselves as Agile or not, they use many of the same patterns.

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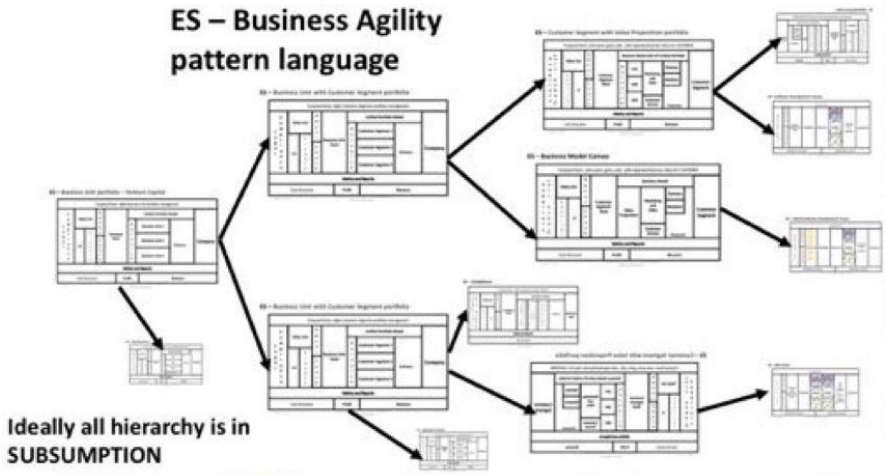
NOTES:

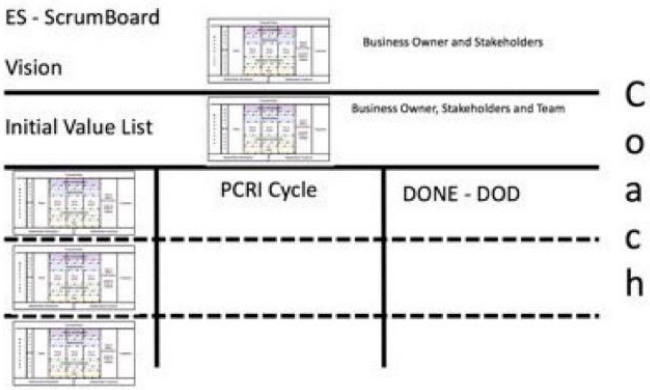
Business Agility Enterprise Scrum

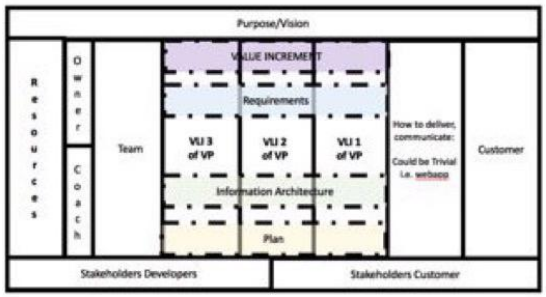
Agilize ANYTHING with Enterprise Scrum!!

Enterprise Scrum – Business Agility for Companies of ANY size!!!



Scrum	Enterprise Scrum
Software/Product	General Purpose
Scrum – for product development	Enterprise Scrum – for general-purpose scaled agile management
Product Owner – owner of a product	Business Owner – owner of a business area. Role, not necessarily a single person
Scrum Master – coaches Scrum Team to do Scrum for product development	Enterprise Scrum Coach – coaches Enterprise Scrum team to configure and do Enterprise Scrum
Team – does product development	Team – does any kind of work
Product Backlog – list to develop a product	Value List – list to deliver value
PBI (product backlog item) – feature or something else to be DONE in product development by passing a DOD	VLI (value list item) – **GENERICITY INCLUDED.** Anything that gets DONE and delivers value passing DOD for ANY activity or domain.
Sprint – 1-4 week time box with Planning, (unnamed section to do work), Review, Retrospective and Refinement	Cycle – configurable time box of any length, with configurable options for the cycle (Planning, Collaboration, Review, Improve), with nesting allowed in time and structure e.g. one week ICs contained in quarterly ICs contained in 1 yr. ICs.
DOD, DOR – for product development	DOD, DOR – general purpose
Scrum Board – for product development	ES Scrum Board – for general purpose. Moves VLIs from the "not selected" canvas to the "done" canvas
Velocity – single productivity metric	ANY Metrics – many possible metrics: customer satisfaction, employee happiness, velocity (effort), profit, etc.
	SCALING INCLUDED. 1024 options!!!
	Calculations –calculations for different Cycles. For example, Release Planning.
Product Increment – an increment for for a product	Value Increment – where value is delivered for ANY purpose
PSP (potentially shippable product)	PV or AV – potential or actual value
Sprint Burndown	ANY Charts to graph Metrics, including Burndowns





Balanced Metrics for Business Value

- Business Value is defined ***explicitly*** through a balance of the metrics (see below)
- NOT just velocity
- Examples:
  - Customer satisfaction
  - Employee Happiness
  - Profit
  - Velocity (cost)

ES CULTURE

* Invite people to work together for a common PURPOSE.
* Let people work on what they like and who they want to work with at their own pace.

ES – Scaling (4^5 = 1024 options!)

Structural patterns:
single BO+C, single BO, virtual T+BO, chameleon
Collaboration mode:
centralization, delegation, collaboration, subsumption
Delivery Modes:
CDel, CDep, Cycle, Release (Coincident multi-Cycle)
Delivery Targets:
large project/process/product, program, portfolio, Enterprise Architecture
Contract Types:
TM, Fixed Date, Fixed Price (Operations), Cost+,

VLIs

ACTION MODS

- **actionMods = <work, refine, decide, test, research, answer, monitor>,**

TIME

- **time { cycle, unselectable, scheduled, repeatable {cycleName}},**

STRUCTURE

- **structure <singleton, collection {order}, workflow{orderPairs{singleton, actor}>**

ATTRIBUTES

- Have extended domain-specific attributes to do work in that domain! and
- NOT only do work but
- break work
- make decisions
- test hypothesis
- answer questions
- monitor things