



Asociación Mexicana de Métricas de Software



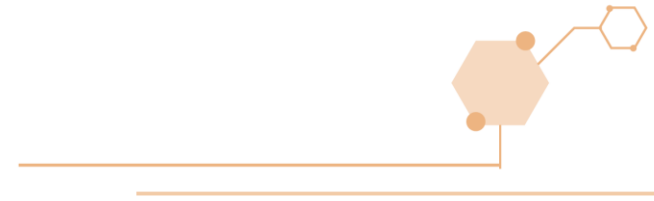
Colaboradores:



# AGILE & FSM METHODS GO WELL TOGETHER!



IT CONFIDENCE  
CONFERENCE



# Agenda

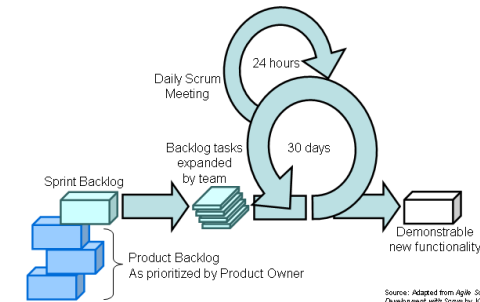
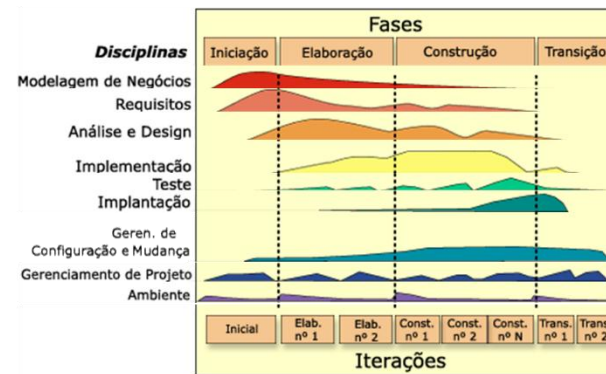
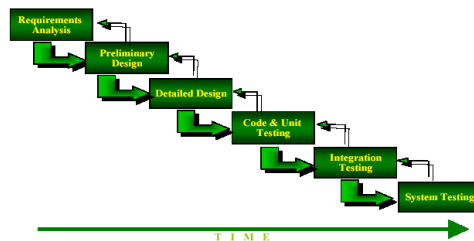
- The dilemma: Agile Development or Function Points?
- TI Métricas' Experience in 2017:
  - How has this been adopted in the Brazilian market?
  - What benefits were obtained from measurement?
  - Did the metrics analyst job change?
  - Are Story Points incompatible with Function Points?
- What about 2018 year?



# The Dilemma: Agile Development or Function Points?

“My Project is agile – can’t it be measured in Function Points?”

Figure 2: Waterfall Model of System Development



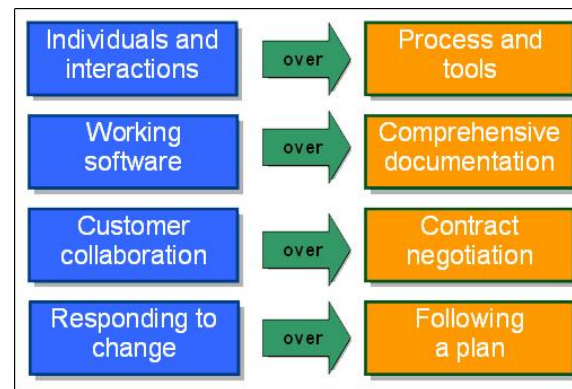
All FSM Methods represent AGNOSTIC techniques in relation to technology and development methods.

Then what’s the reason for the dilemma?

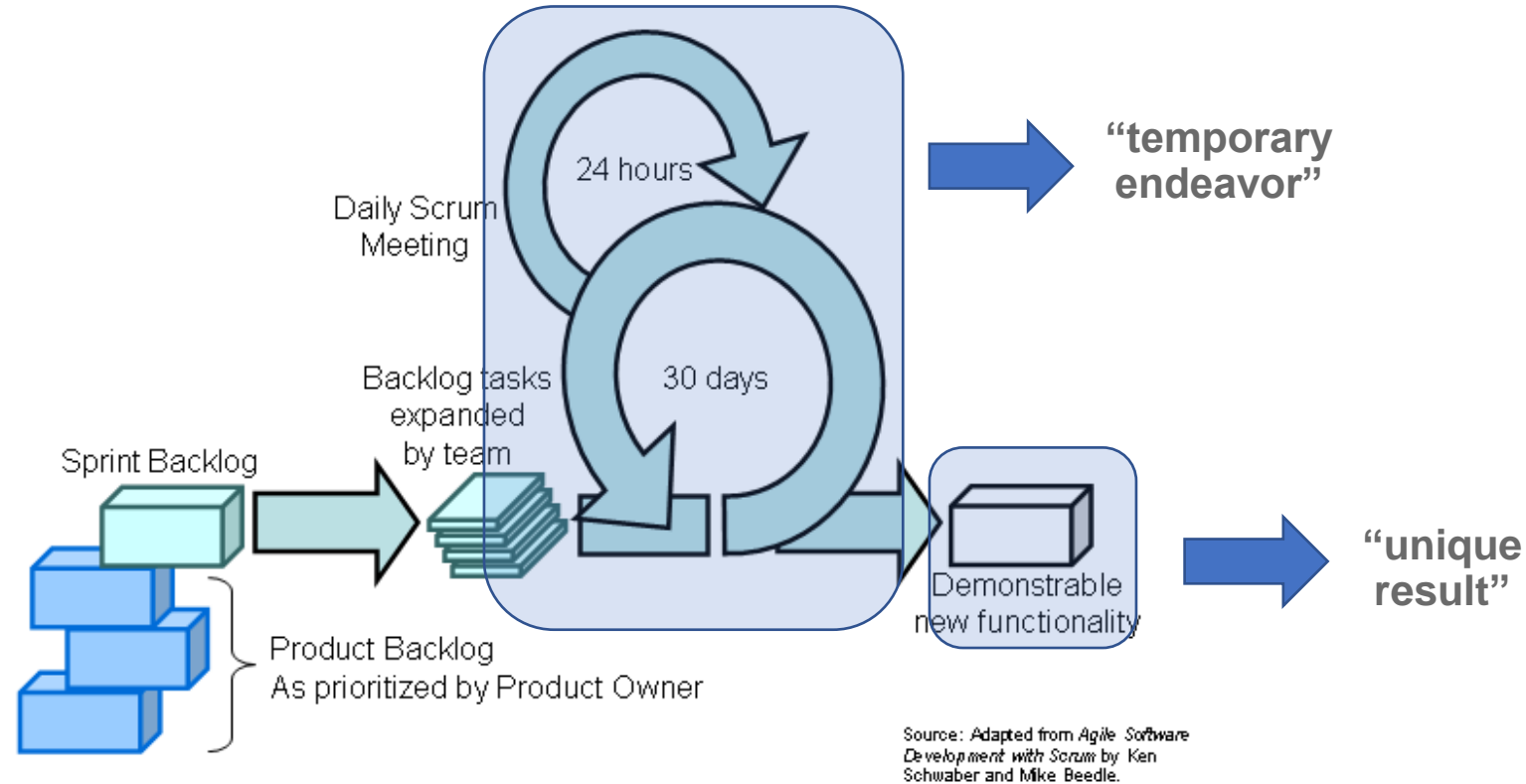
# The Dilemma: Agile Development or Function Points?

- In the 2000s, the majority of projects either did not deliver as promised, or delivered after cost and/or schedule overruns
- Companies have increasingly looked for ways of delivering high-value products with higher quality, and faster.

**The agile mindset is necessary and a matter of market survival!**



# The Dilemma: Agile Development or Function Points?



Function Points are applicable to Agile development!

# TI Métricas' Experience

Clients have been adopting a **HYBRID** Agile approach:

- **Agile development is still strongly influenced by governance protocols created for projects using a traditional approach in the same environment.**

# TI Métricas' Experience

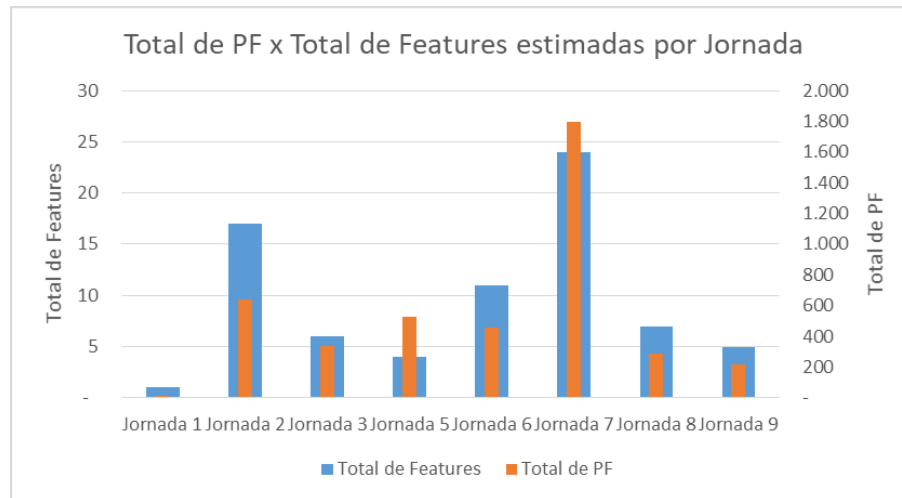
- **Client from the Finance industry**
- Deployment of a new, innovative and disruptive product.
- Adoption of agile methods, hybrid approach:
  - Each product module is still understood as an individual project,
  - Uses Scrum practices and management tools such as JIRA and Confluence.
- FP measurement of each project during the planning phase to check the software factory's proposal (from Jun/17 to Aug/17)

**Savings of ~10% were obtained in relation to the initial proposals.**



# TI Métricas' Experience

- **Client from the Finance industry**
- A need to estimate the 2018 budget (“Journeys”)
- FP measurement based on the features of each Journey:
  - Simplification: defining “Topics” as data functions and “Subprocesses” as transactional functions.



A budget of approximately 380.0000 work hours was estimated considering all planned Journeys.

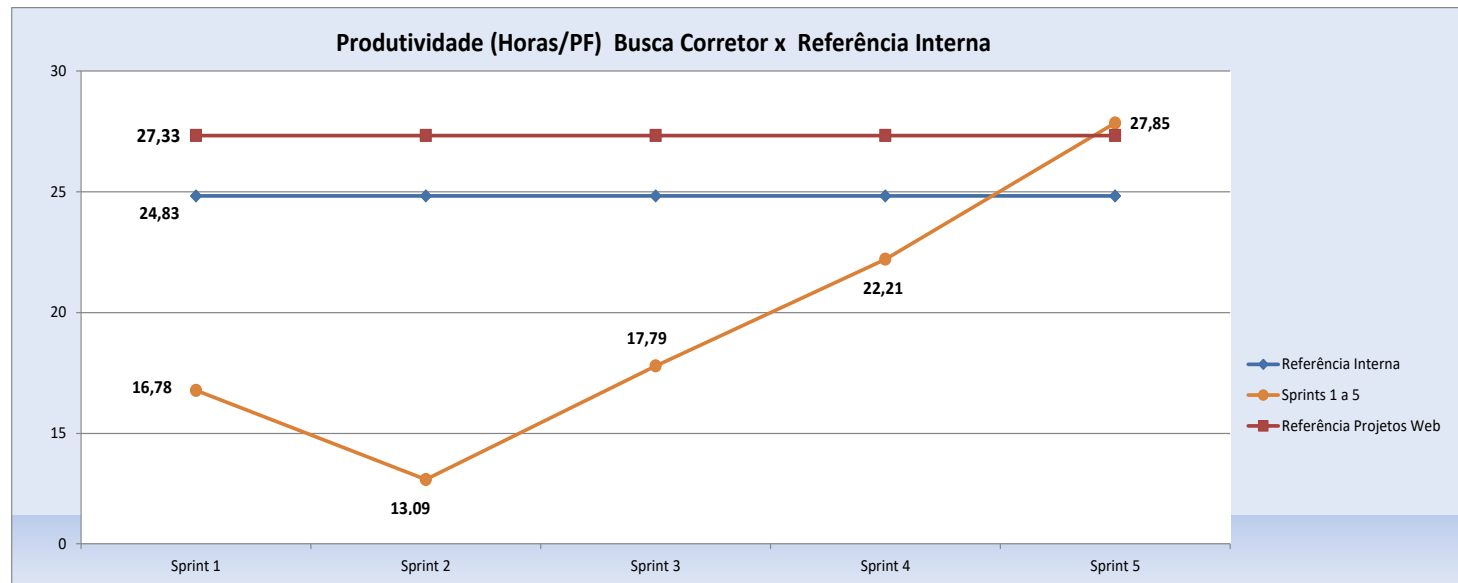
# TI Métricas' Experience

- **Has the metrics analyst job changed?**
- Look for inputs, rather than documentation:
  - Better balance between documentation analysis and meetings with Business Analysts
  - Immersion in analysis meetings and Product Backlog prioritization
  - Direct access to User Stories in agile management tools.

# TI Métricas' Experience

- **Client from the Insurance industry**
- Four digital transformation projects were FP-measured from Mar/17 to Aug/17:
  - Typical agile practices were adopted, with a multidisciplinary team including a Scrum Master and a Product Owner, 100% onsite with 2-week Sprints.
  - Presence of a Product Manager - Scalability
- Measurement at the Sprint level based on User Stories.
- The results made it possible to assess the performance of each sprint inside each project and **to compare each project to the overall performance of all projects based on the same approach.**

# TI Métricas' Experience



The sprint performance of this project stayed within the limits identified by internal benchmarking studies.

In this project, the effort level spent in tests (QA), mainly from Sprint 3 on, had a negative effect on productivity.

- As a result, an action plan was created to determine the levels of test automation needed to reduce execution effort.

# TI Métricas' Experience

## Are Story Points incompatible with Function Points?

- The previous study showed it is possible to COMPARE results between different projects and sprints using FPs.
- Story Points represent RELATIVE measures of size, i.e., work within a specific project context since they quantify the view of a team.
- Story Points must be analyzed within the same context to determine and assess CAPACITY/VELOCITY.
- When the goal is to SUPPORT GOVERNANCE the utilization of FPs allows for comparative analyses (multiple distinct contexts).

# TI Métricas' Experience

- **Client from the Finance industry**
- A pilot measurement study was run in Jul/17 to assess the productivity of agile projects – a 27-project sample.
- The agile framework adopted:
  - based on the Spotify model (Squads, Tribes, Chapters, Guilds) combined with SAFe,
  - strong interaction between teams due to physical proximity,
  - based on user story definitions extracted from JIRA

# TI Métricas' Experience

- The data from this analysis showed the general performance of projects/sprints to be worse than the average/median of the national Market.

Client data

	Effort (h)	Size (FP)	Productivity (h/FP)
Average	669.33	25.03	33.51
Median	720.00	24.99	30.79
Std deviation	293.99	14.14	19.07

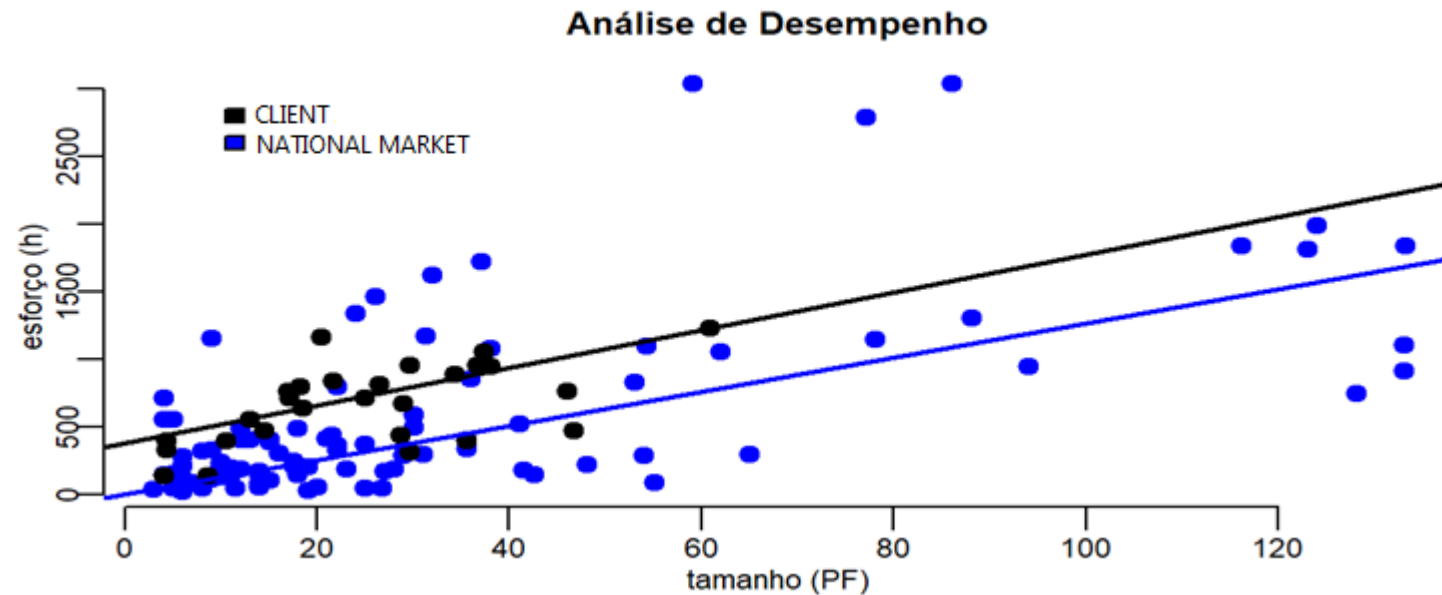
Market data

Productivity (h/FP)		
95% CI		
11.27	14.02	12.65

- Agile development methodology;
- Based on IFPUG CPM version 4 or later;
- Functional size < 140 FP;
- Data from financial organizations.

# TI Métricas' Experience

- The regression model includes a constant equal to 378,88h for each project.
- Once the constant is removed project performance becomes compatible with market data:

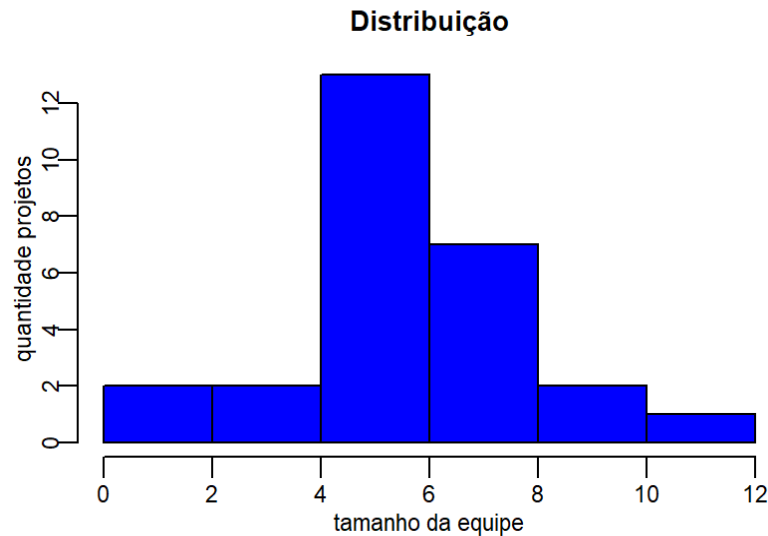




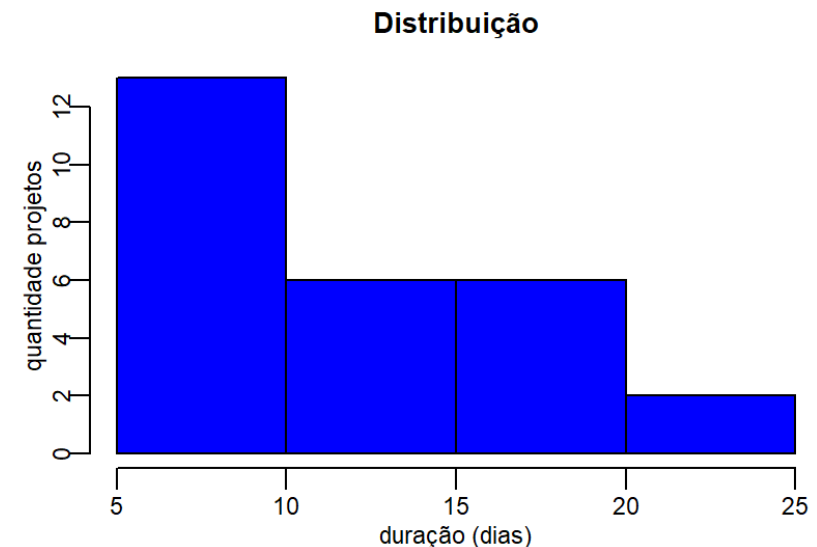
# TI Métricas' Experience

- Some project characteristics were determined through sample analysis. This made it possible to create estimating models for the next sprints:

The average team size is 6.26 individuals and is independent of the functional size.



The minimum duration of a sprint is 7.4 days.  
Each FP added increases duration by .2 days



# TI Métricas' Experience

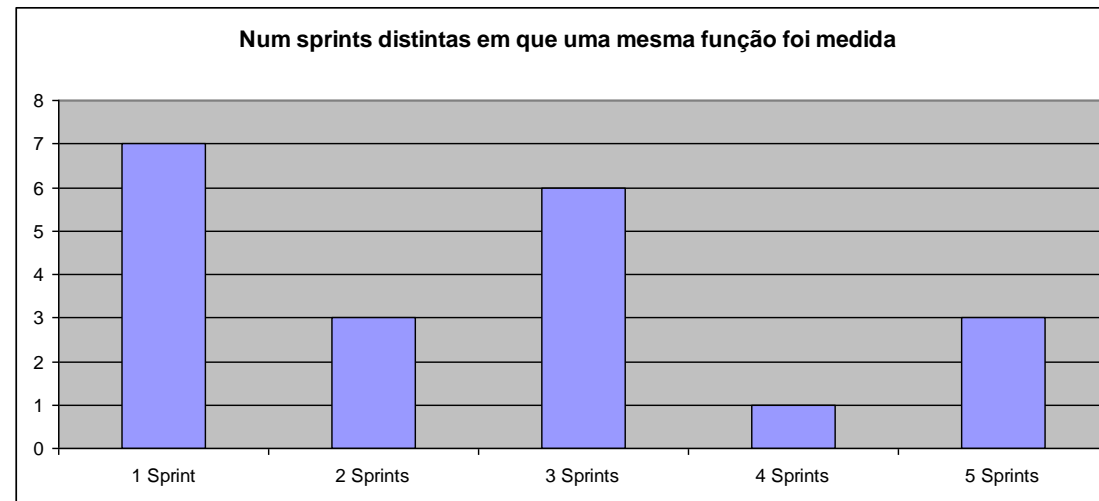
- Because of the useful results obtained the client asked TI Métricas **for a three-month extension of this work** (currently in progress), where new project/sprint samples will be analyzed and new findings will support the IT governance area in the decision to extend the agile approach to more projects.

# TI Métricas' Experience

- **Client from the Finance industry (Government)**
- Development of a mobile front-end,
- One agile team applying Scrum concepts,
- Sprint duration varying between 2 and 4 weeks.
- Software factory compensation based on FPs at the end of each sprint
- Inputs obtained from Use Cases

# TI Métricas' Experience

- The FP-size of the final product after 7 sprints was 116 FPs with 14 transactional functions and 6 data functions (a total of 20 functions):



- 13 of the 20 measured functions (65% of the total) were paid for more than once along the product's development.

**Incremental Development or Change Requests?**

# TI Métricas' Experience

- How to compensate agile projects in Function Points?

## Client view:

Compensation for completed function, i.e., when ALL the elements of business rules, data entities and fields are contained in the said function -> N sprints/iterations until the function is complete -> not economically viable for software factories!

It is necessary to BALANCE the needs of both parties (client and supplier) when creating the contract,



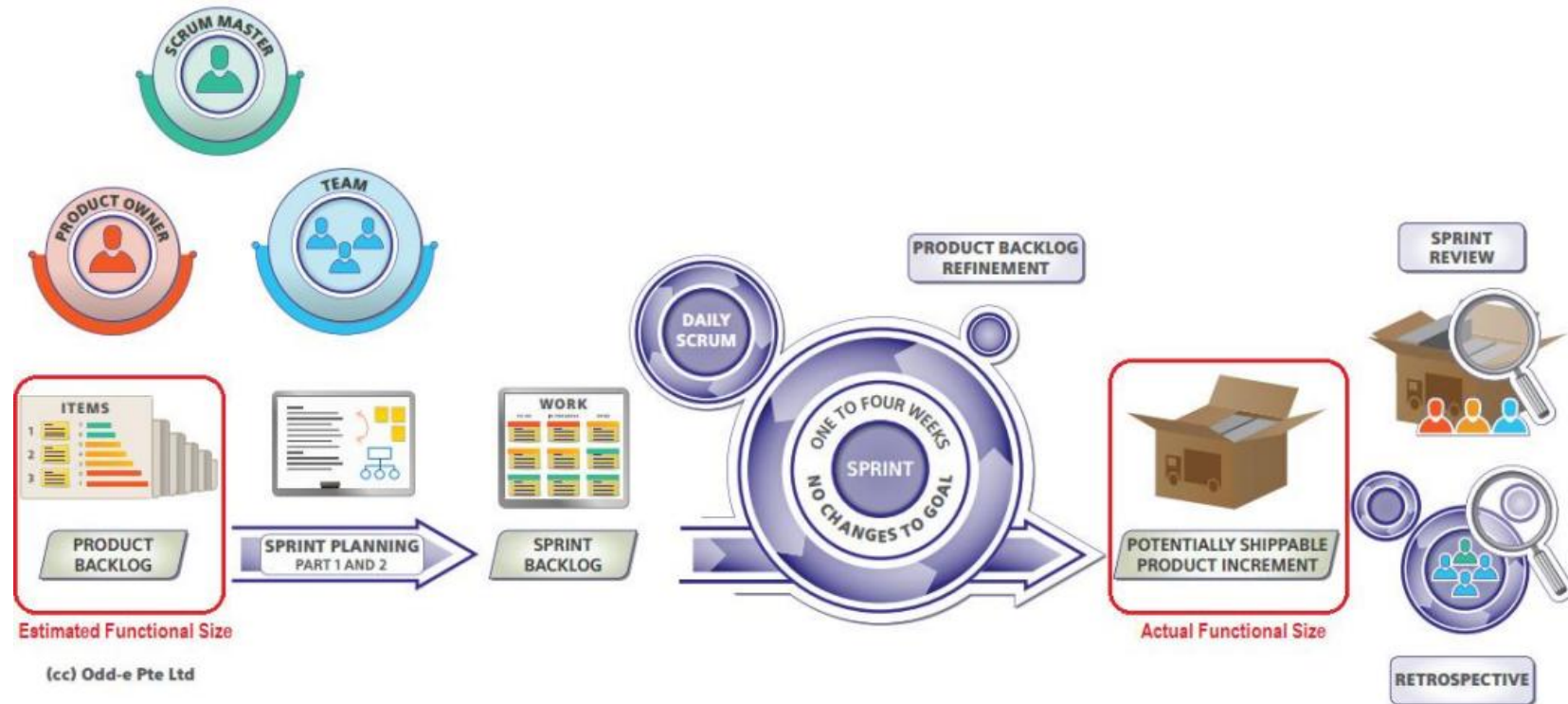
## Software factory view:

Compensation per sprint provides a constant cash flow -> function paid for N times -> economically costly for the client!

For example, using specific deflators to deal with functionality Refinement

# TI Métricas' Experience

- When should one estimate/measure using Scrum?



Effort, Velocity and Size  
Estimating

Final Size, Productivity  
and Velocity

# TI Métricas' Experience

- When should one estimate/measure using Kanban?



Effort, Velocity and  
Size Estimating

Pool of Ideas	Feature Preparation		Feature Selected	User Story Identified	User Story Preparation		User Story Development		Feature Acceptance		Deployment	Delivered
	3 - 10		2 - 5	30	15		15		8		5	
Epic 431	In Progress	Ready			In Progress	Ready	In Progress	Ready (Done)	In Progress	Ready		Epic 294
Epic 478	Epic 444	Epic 662	Epic 602				Story 602-02	Story 602-06	Epic 401	Epic 609	Epic 694	Epic 386
Epic 562	Epic 589		Epic 302	Story 302-03	Story 302-01	Story 302-07	Story 302-09	Story 302-05	Epic 468	Epic 577	Epic 276	Epic 419
Epic 439	Epic 651		Epic 335	Story 302-02	Story 302-06	Story 302-08			Epic 362		Epic 339	Epic 388
Epic 329			Epic 512	Story 335-09	Story 335-10	Story 335-04	Story 335-05	Story 335-06			Epic 521	Epic 287
Epic 287				Story 335-08	Story 335-01	Story 335-03	Story 335-02	Story 335-07			Epic 582	Epic 274
Epic 606	Discarded			Story 512-04	Story 512-07	Story 512-02	Story 512-01					
	Epic 511	Epic 213		Story 512-05	Story 512-06	Story 512-05						
	Epic 221											

Final Size, Productivity  
and Velocity



## Policy

Business case showing value, cost of delay, size estimate and design outline.

## Policy

Selection at Replenishment meeting chaired by Product Director.

## Policy

Small, well-understood, testable, agreed with PD & Team

## Policy

As per "Definition of Done" (see...)

## Policy

Risk assessed per Continuous Deployment policy (see...)

# What about 2018 year?

- Cases #1 & #2 Clients from the Finance industry – Continuous services: supplier proposal analysis and 2018 performance assessment to define delivery goals for 2019
- Case #3 Client from the Insurance industry – Improvement actions based on the analysis of productivity indicators, velocity, sprint complexity, defects and the ability to respond to user functional requirements evolution
- Case #4 Client from the Finance industry – As of 1/2/2018 an organizational “Productivity” team was created to FP-measure all deliveries, track indicators (velocity, productivity, defects), maintain the historical database, and estimate productive capacity for 2019.
- Increasing number of requests from clients interested in demonstrating and communicating results obtained with agile methods in a standardized way (clients from telecom, entertainment, retail)





# Thank you!

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