



THE UNIVERSITY OF  
MELBOURNE

SWEN90016  
Software Processes & Project Management

# SDLCs Case Study

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# Background

## THEN

Early '90s, sending and receiving payments online between individuals was not an easy process.

People didn't even imagine the possibility of such transactions, even though banks and other financial institutions had the means of conducting them.

## NOW

Used in 200+ countries in the world.

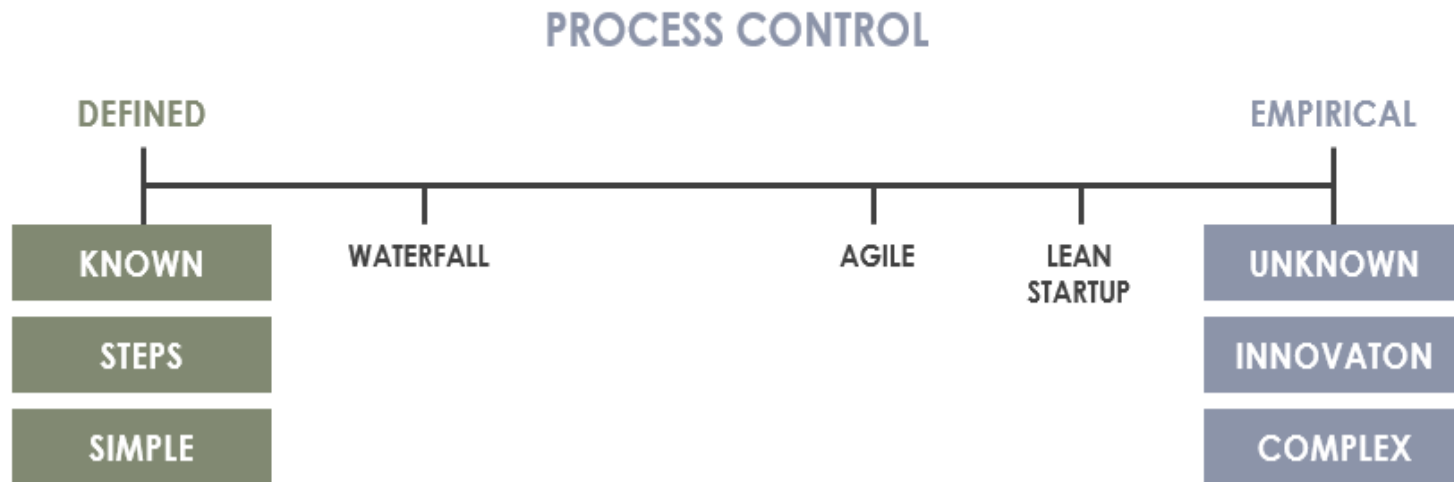
50+ currencies



## Empirical and Defined Process

A process is a series of progressive and interdependent steps by which an end is attained.

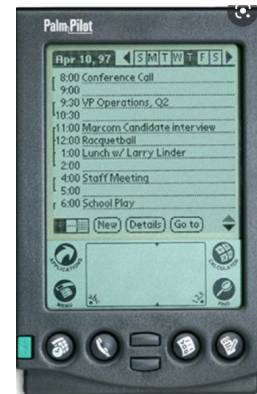
Empirical process control expects the unexpected, while defined process control expect every piece of work to be completely understood in upfront.



# PayPal Case Study

## How it started.....

- 1998: Initial product created to encrypt word documents  
But no one wanted to keep word documents secret  
Encrypted money transfer between PalmPilots  
The **first tool** to transfer money electronically  
Built web interface as a sales demo tool **ACCIDENT**  
PalmPilot device not popular, so demo-ed the tech on the web



## A success story

1999: Encrypted money transfer **service** component

2000: Merge with an online bank (Elon Musk- X.com)



## A success story

2001: Changed name to PayPal (Confinity + X.com)

2002 Listed on NASDAQ; Acquired by Ebay (1.5bn)



# Slow down

2002 -

Company was small, they could rapidly build solutions which put them at the leader

Innovation began to decrease, release cycles increased from weeks to months and many months

2008 - 6 key drivers for the slow down

1. Annual Planning –defined and documented in a Product Requirements Document (PRD) which could take months and were often out of date before coding began.

[1]

# Slow down

## 2. Complex quarterly planning

New process for planning to allow for more flexibility, added complexity

## 3. Domain bottlenecks

Divided the environment into 85 domains, unintended consequence was a bottleneck at certain key areas (necessary for every project). These included risk, compliance, payments.

## 4. Developer context switching

To enable more projects to kick-off, developer were assigned to multiple projects during planning. This context switching reduced productivity of the individual and team.

[1]



# Slow down

## 5. Traditional waterfall development

To facilitate and coordinate efforts across the organisation, they used waterfall. Those teams that had developed using grass root agile efforts were forced to follow the strict process of Waterfall.

## 6. Integration testing cycles

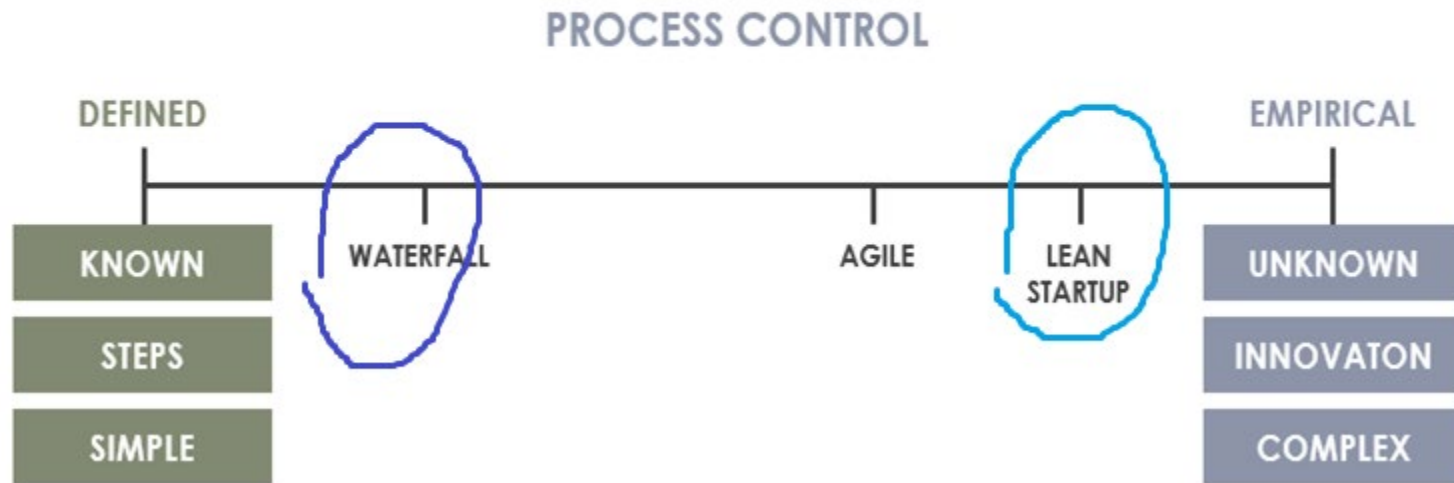
To ensure quality of each release- rigorous testing required, code branches grew and integration and testing cycles increased even for the smallest change- 6 weeks of integration testing cycle to ensure it didn't break the site.

[1]

## Empirical and Defined Process

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# Results

People (developers) were frustrated.

Exec management was frustrated.

Customers were frustrated

*What happened?*

# Results

2012

PayPal promoted David Marcus- President

*Focus was on the customer*

Kirsten Wolberg joined as Lead Technology Business Operations - *Agile*  
(had experience with Agile as CIO at salesforce.com)

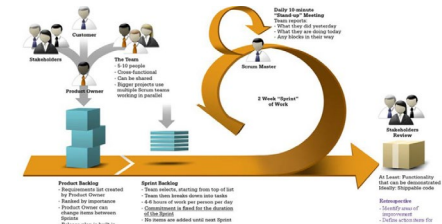
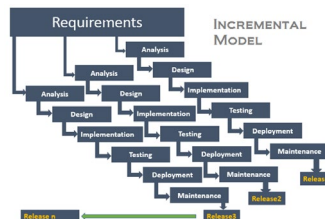
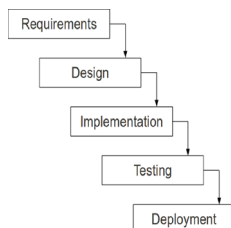
Alignment executive sponsorship and leadership with the employees and this enabled PayPal to embark on a *radical transformation*.

[1]

# Formal or Agile which one Should I use???

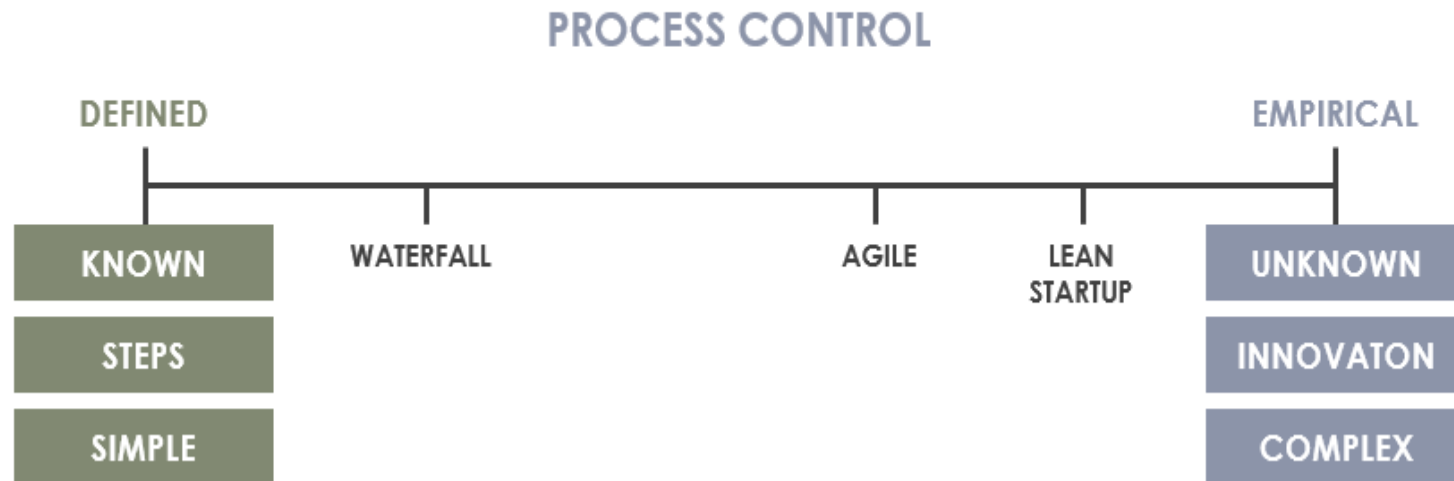
There is no one right answer. The following questions can assist deciding:

- How Stable Are the Requirements?
- Do the end users need to collaborate?
- Is the Time-Line Aggressive or Conservative
- What Is the Size of the Project
- Where Are the Project Teams Located
- What Are the Critical Resources?



## Let's think of some projects.....

Empirical process control expects the unexpected, while defined process control expect every piece of work to be completely understood in upfront.



[www.visual-paradigm.com/scrum/empirical-vs-defined-process-control](http://www.visual-paradigm.com/scrum/empirical-vs-defined-process-control)

# References

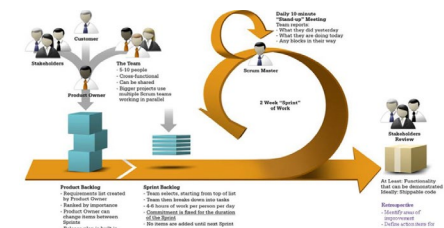
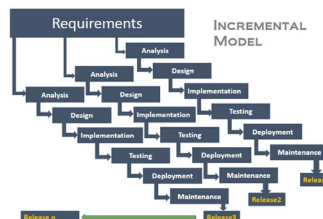
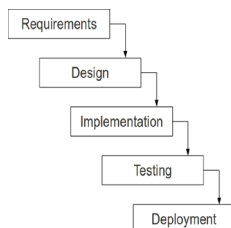
[1] (10 March 2021) PayPal Enterprise Transformation

Available:

[https://www.paypalobjects.com/webstatic/en\\_US/mktg/pages/stories/pdf/paypal\\_transformation\\_whitepaper\\_sept\\_18\\_2015.pdf](https://www.paypalobjects.com/webstatic/en_US/mktg/pages/stories/pdf/paypal_transformation_whitepaper_sept_18_2015.pdf)

- Waterfall- Agile (Hybrid) methodology
- Agile and waterfall are two distinctive **methodologies of processes to complete projects or work items.**
- May adopt a few Agile practices on top of a waterfall model, without significantly altering the waterfall model.
- Agile is an iterative methodology that incorporates a cyclic and collaborative process.
- Waterfall is a sequential methodology that can also be collaborative, but tasks are generally handled in a more linear process.

<https://www.thoughtworks.com/en-au/insights/blog/good-and-bad-wagile>





- PRINCE2 (Projects in a Controlled Environment) is a defined methodology with roles and responsibilities and deliverables (IT government contracts)
- PMBOK Guide is essentially a collection of good PM principles, techniques and guidelines that help you manage projects.
- PMBOK also provides guidelines on procurement (contract management, scope management).
- PMBOK, the project manager can seemingly become the primary decision maker, planner, problem solver, human resource manager and so on. Focus on soft skills.
- PRINCE2 aiding the project manager to oversee projects on behalf of an organisation's senior management (shares more of the functional and financial authority with senior management, not just the project manager).

[https://www.researchgate.net/profile/Joao-Miguel-Cotrim-2/publication/272148384\\_PRINCE2\\_Vs\\_PMBOK/links/54db6bf40cf233119bc62270/PRINCE2-Vs-PMBOK.pdf](https://www.researchgate.net/profile/Joao-Miguel-Cotrim-2/publication/272148384_PRINCE2_Vs_PMBOK/links/54db6bf40cf233119bc62270/PRINCE2-Vs-PMBOK.pdf)

- The **Scaled agile framework (SAFe)** is a set of organization and workflow patterns
- Guide enterprises in scaling lean and agile practices
- SAFe is one of a growing number of frameworks that seek to address the problems encountered when scaling beyond a single team.

[https://en.wikipedia.org/wiki/Scaled\\_agile\\_framework](https://en.wikipedia.org/wiki/Scaled_agile_framework)

## SAFe 5 for Lean Enterprises

