

# The Project Management for IT Projects: an introduction

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1

## The ITCPM Course

**Project Management** is a wide domain of concepts, techniques, tools, used all over the world to define, program, develop project with different nature and targets.

This Course is aimed to offer the attendees an overview of that complex, but fascinating, matter.

The Course will be splitted in two parts: the first one (led by Paolo Filauro) will cover the so said *predictive project management*, while the second (led by Mario Salano) will introduce in details the *agile methodology*.

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## Predictive vs Agile

The Project Management methodologies can be defined in two, different but non antithetical ways: predictive and agile.

The **predictive** methodology focuses on planning and analyzing the projected future in-depth even to anticipate the risks. This methodology relies on an early phase analysis and a detailed breakup of features and tasks for the entire development process.

In **agile** methodology, adaptive project management caters to focusing on adapting quickly to changing scope and project reality. As with the predictive model, with this methodology you still plan, schedule, identify key milestones and dependencies. But this model provides way *more flexibility* in the path to the end goal, which accommodates *changing requirements* along the way.

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## Predictive methodology

The **Predictive methodology** is one of the best methods for projects that have regular standards and no scope of change. The predictive method doesn't entertain flexibility in development and is ideal for projects that have been fully explored on the conceptual level and now "only" need to be implemented correctly to achieve the expected performances.

*The predictive methodology is highly appropriate when:*

- The specifications of the project are not to be changed
- The project has a clear, well defined target/product: an equipment, a building, an infrastructure, and the time schedule is fixed and compulsory
- The project team is large and remotely distributed
- The project development process is documented and shared with all stakeholders

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## Agile methodology

The **Agile methodology** is popular for projects where clients' demands and requirements change frequently.

*The agile methodology is highly appropriate for very innovative projects and in particular with:*

- Ever-evolving projects with an undetermined closing
- Organizational teams which are quite flexible and adaptable to change
- Lean and small project teams
- When the timeline is flexible
- Rapidly evolving industry

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## The Project Management

We will speak about:

- **WHAT** is the Project Management
- **HOW** it can help us
- **WHY** we should use it

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## What is a Project (1)

The Guru of the Project Management, Russel D. Archibald, defines a project as:

"the systemic management of a complex, single and **fixed-term** company aimed at achieving a **clear and predefined** objective through a **continuous process** of differentiated planning and control and interdependent **cost-time-quality** constraints"

And the Project Management Institute, in a more simple way:

"Project Management is the application of **knowledge, skills, tools and techniques** to project activities to meet project requirements"

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## What is a project (2)

The basic characteristic of a project:

- It is an **enterprise** quite often a COMPLEX one, with two basic characteristics
- It is a **TECHNICAL** enterprise: we must *build* something (a house, an equipment, a software product, ....)
- It is an **ECONOMIC** enterprise: in general a Company launch a project not for charity, but to get a profit, after the costs that will be paid.

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AND ....

## What is a Project (3)

- It is *temporary (fixed terms)*: it starts and finishes
- Its target is to *obtain something unique*, never got before (infrastructure 2 is always **DIFFERENT** than infrastructure 1!!)
- Its development is formed by *consecutive steps*, linked (in some way) each other

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## Business Life Cycle

A correct Business Life Cycle should be split in various steps with different involvement of a PM

Step	PM involvement
Offer	Poor
Negotiation	Should be
Planning	Owner
Development	Owner

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## Why Project Management (1)

To Manage a Project is a **cost**.

The question is: why have I (the Company) to pay that cost?

### Because:

The PM activities are required to achieve the project target, with the minimum of resources, the minor possible costs, on time, with the highest quality AND with the Customer's satisfaction

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## Why Project Management (2)

And BECAUSE it answers the big, existential questions of a Project Manager:

- **WHAT**
- **WHEN**
- **WITH WHOM and WITH WHAT**
- **HOW MUCH I will pay**
- **HOW MUCH I will earn**

### Is it enough ?

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## Course Agenda (Part 1)

1. Basic tools
2. Programming a Project
3. Controlling a project
4. Communicating
5. Exercises
6. A real life experience

### NEXT LESSON

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## Project Management for Innovative Products

We will speak about:

- **WHAT** is Project Management for Innovative Products
- **HOW** it is properly adapted for to optimize efficiency
- **WHY** we should use it

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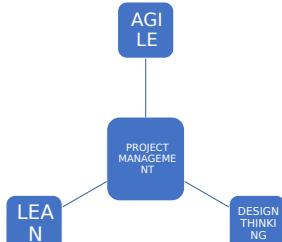
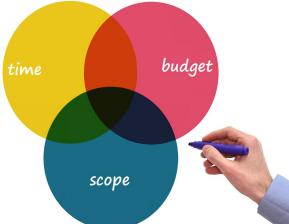
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**WHAT** is Project Management for Innovative Products

UNCHANGEABLE CONSTRAINTS

METHODOLOGIES

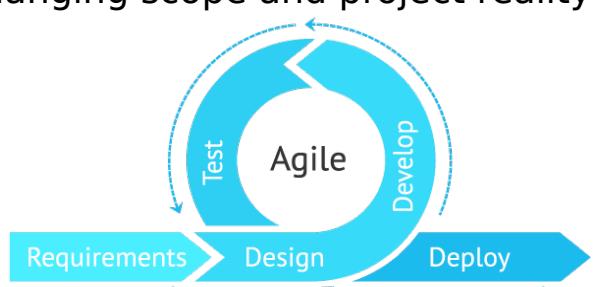


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**AGILE**= adapting quickly to changing scope and project reality



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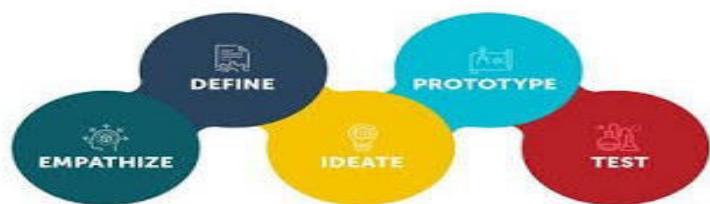


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**DESIGN THINKING:** a non-linear, iterative process to understand users, challenge assumptions, redefine problems and create innovative solutions to prototype and test.



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## INNOVATIVE PROJECTS: MAINLY IT ,NOT ONLY IT

Innovative projects need a proper approach today,in an environment disrupted by huge technology advances and clients looking for quick value

- analytics
  - business intelligence,
  - statistics
  - cybersecurity
  - infrastructure for software implementation: hardware,connections,data centers
  - IT migrations to change a software platform and interfaces with other systems,
  - Coding for many environments: internet, Office support, motion control...
- CREATION OF SOMETHING NEW WITHOUT SUPPORT BY EXPERIENCE**

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## MANAGING PROJECTS WITH LINKS TO NEW TECHNOLOGIES

### IT FOCUSED TECHNOLOGIES

- ARTIFICIAL INTELLIGENCE
- BIG DATA
- INTERNET OF THINGS
- CLOUD COMPUTING
- WERABLE DEVICES
- DIGITAL TWINS
- AUGMENTED&VIRTUAL REALITY
- ROBOTICS
- BLOCKCHAIN

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### NO IT FOCUSED TECHNOLOGIES

- 3D PRINTING
- ADVANCED MATERIALS
- BIOTECHNOLOGIES
- NEUROTECHNOLOGIES
- POWER MANAGEMENT
- SPACE TECHNOLOGIES

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## WHY DIFFERENT APPROACHES ARE NECESSARY

- BECAUSE INNOVATIVE PROJECTS HAVE NOT A TWIN THAT HAVE PROVED SUCCESSFUL IN THE PAST (cars, appliances, houses...)
- BECAUSE INNOVATIVE PROJECTS ARE **EXPLORATORY**, TERM REFERRED TO SOMETHING DONE TO DISCOVER MORE ABOUT SOMETHING (SERENDIPITY PHENOMENON OFTEN OCCURS...)
- BECAUSE INNOVATIVE PROJECTS ARE OFTEN FEATURED BY HIGH-UNCERTAINTY WORK WITH HIGH RATE OF CHANGE,COMPLEXITY,RISK WITH A NEED TO EXPLORE FEASIBILITY QUICKLY

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## The course (part 2)

We will develop the second part of the course, focused on Agile methodology, in some steps:

- Basic Concepts
- How to run a Project according to SCRUM,LEAN and DESIGN THINKING (the 3 most important methodologies)
- A real life experience

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## Course agenda (part 2)

1. INNOVATION AND METHODOLOGIES
2. AGILE CONCEPTS
3. AGILE METHODOLOGIES OVERVIEW WITHOUT SCRUM
4. SCRUM
5. LEAN
6. DESIGN THINKING
7. VALUE DRIVEN DELIVERY
8. STAKEHOLDERS,TEAMS,ADAPTIVE PLANNING
9. CASE STUDIES
10. EXERCISES
11. CONTINUOUS IMPROVEMENT AND REVIEW

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## The IT Project Management

### Lesson 2

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## Why Project Management (2)

And BECAUSE it answers the big, existential questions of a Project Manager:

- **WHAT**
- **WHEN**
- **HOW**
- **WITH WHOM**
- **HOW MUCH I will pay**
- **HOW MUCH I will earn**

### Is it enough ?

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## Starting a project/1

Before the actual project management activities start, we should examine some preliminary topics. And answer some questions:

- The «**scenario**» in which the project will be developed
- **What** we have to do: the Statement of Work (SOW) and the Product Breakdown Structure (PBS)
- **Which** are the required **activities**: the Activity Breakdown Structure (ABS) (the *HOW*)
- The required **human resources**: the Organisation Breakdown Structure (OBS) (the *With Whom*)

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## Starting a project/2

When the above questions are answered, we will be able to define the detailed structure of the project:

### the Work Breakdown Structure (WBS)

Then we will add some other elements:

- The **budget** and the **cost analysis** (the *How Much I will pay*)
- The **risks** that the project will (hopefully not) face: the **Risk Analysis**
- The **economic result** of the project: the **EVA** (Economic Value Added) (the *How much I will earn*)

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## The scenario/1

We should understand **WHERE WE ARE**, to find the best way to manage it

### First:

The project NATURE, and SCOPE

- Research
- Development of a new product
- Equipments' installation
- Plant
- .....

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## The scenario/2

### Second:

The CUSTOMER

- Internal (the worst)
- A private Company
- A public Company (often very formal: public money and bureaucracy)
- Abroad
- .....

### Third

The EXPECTATION:

- Vital
- Standard
- .....

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## The SOW

### The Statement of Work

A document (*written and signed*) in which the **REQUISITES** of the project scope are defined.

The owner of the SOW is, generally, the Sale Manager (who sold the product), the Head of R&D (in case of internal, research projects), .... The PM is not involved, unless the Salesman asks him to participate to the definition of the product with the final Customer (not very often)

The SOW is the **contractual document** on which all the Project Management activities are based: it is the Bible of the project, to be learnt by heart by the PM.

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## The real PM's job starts: Planning a Project

First of all:

### Define the TARGETS

AS:

The Project Planning starts with **the identification of a coherent set of targets to be achieved**

The Target is what **REMAINS**: not the *action*, but the *result* of the action

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## The PBS (Product Breakdown Structure)

Starting from the SOW, we can face the first step

### WHAT we have to do

A **Product** is formed by some (few or many) parts, of the same nature or of very different kind.

To understand WHAT to do, it is important to identify the single part.

The PBS is basically the **hierarchical decomposition (breakdown)** of the components of the final product. In general, a **list of parts**. It can be thought of as the project *shopping list*.

The PBS can be

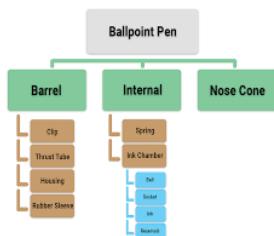
- a standard list of parts (for consolidated typologies of products) , or
- Designed and tailored to a new, unknown product

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## PBS: a (very simple) example



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## The ABS (Activity Breakdown Structure)

### Which are the required activities (How)

To achieve our target (*the product*) we have to produce the *objects* defined in the PBS: the ABS defines the activities to be accomplished to get the target. The ABS as well is a **list of activities** (in general)

As the PBS, an ABS can be:

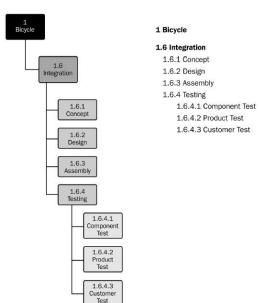
- Standard, for consolidated products
- Designed and tailored to a new product

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## ABS: an example



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## The OBS (Organization Breakdown Structure)

### The required human resources (With Whom)

To accomplish a Project we need an Organization: the OBS is its graphical portrayal

The OBS includes the main people involved in the project: the Team Leaders, basically.

A more detailed matrix is the RAM : *Responsibility Assignment Matrix*

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## The OBS/2

The OBS reflects the way a Company is organized, and the role of the Project Manager.

The OBS can be:

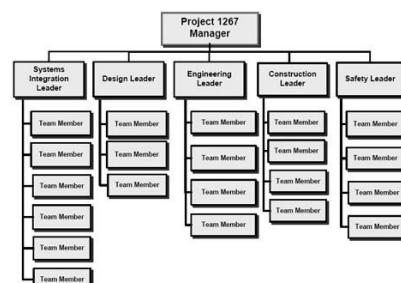
- Strong: the resources report DIRECTLY to the PM for the whole project period. A sort of small (or large) division of the Company. It is used for long lasting, large and critical projects
- Light: the resources are assigned to the project as far as their contribution to the final result is required. They continue to report to their hierarchical responsibles.

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## OBS: an example



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## The next step: the WBS

When the WHAT (PBS), HOW (ABS), with WHOM (OBS) are defined for the specific project, the following step is the COMBINATION of all of them in what is called

### Work Breakdown Structure, WBS

The basis for programming a Project.

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## The WBS

The **WORK BREAKDOWN STRUCTURE** can be defined as

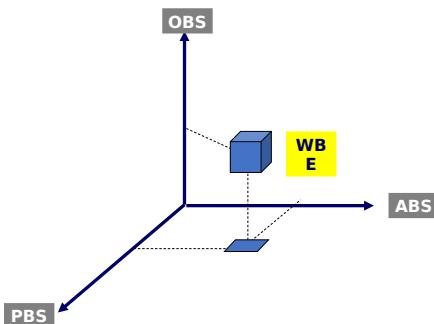
the **top down** decomposition of the project in more and more detailed elements (WBEElements) inserted in their hierarchical position, using a «tree» logic where the WBE are the «leaves».

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## The WBS/2

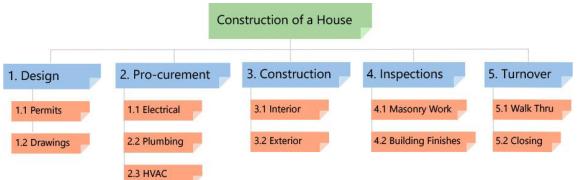


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## WBS example : Construction of a House

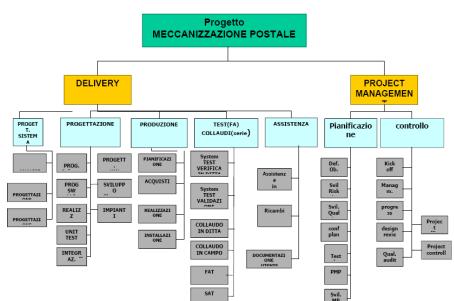


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## A real life WBS Example: Postal Mechanization



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## WBS/4

Some important points:

The WBS is a MANAGEMENT tool: it supports the planning and the control of the fulfillment process, does NOT describe the product realization.

The «depth» of the WBS (how many WBE ?) should consider two criteria:

- Relevance: each element must be *significant* in the context of the whole project
- Criticality: each element that has an impact on the whole result of the project should be highlighted

NOT TOO LARGE, NOT TOO SMALL

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## The Work Package

We have defined the WBE: the «leaves» of the Project «tree». We know what to do, which activities, who will do them.

We have to add two VERY important elements:

- How long does it take to fulfill the task included in the WBE
  - How much does it cost
- And, in more details, who will work: the RAM

We will obtain the **Work Package**: our main tool .

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## The Work Package/2

The **WP** is the **Control Unit**, the deepest detail in which the project should be broken down in order to plan, manage and control it in its aspects:

- Technical and quantitative (PBS, ABS)
- Timing
- Resources (RAM)
- Economical and financial (Costs and revenues)

Generally, a Customer requires a detailed document for each WP.

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## The WP/3

The WP **main requisites**:

- UNIQUENESS
- Clear identification of the TARGETS
- INPUTS required to start
- OUTPUT of the activities covered by the WP: the DELIVERABLE of the WP
- COSTS (materials, man power, supplies, ...)
- RESPONSIBLE: clearly identified and unique (a part of the RAM)
- Start- finish date: DURATION of the activity
- The PROGRESS of the activity must be MEASURABLE

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## The WP/4

Each WP can be further broken down in several, linked activities (the sub-WP), in order to increase the management of the main WP.

For instance:

WP1 Project Planning

WP1.1 Definition of the SOW

WP1.2 Definition of detailed requisites

WP1.3 Scheduling

WP2 Product Design

.....

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# The IT Project Management

## Lesson 3

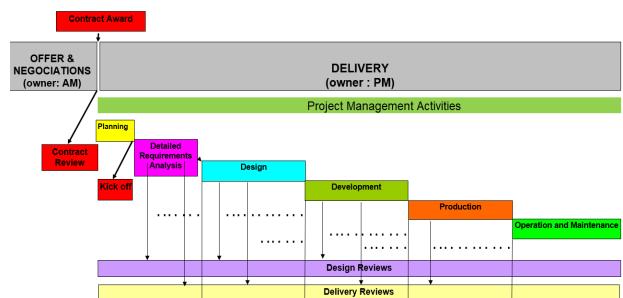
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## The Project Life Cycle



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## The Costs

Generally, the project costs should be estimate during the Proposal cycle  
BUT

The Project Manager is now the Owner and the Responsible of the whole Project

THEN

The costs MUST be renegotiated with the internal and the external suppliers before their assignment to the right WP (for future control)

**REMEMBER:**

**THE ESTIMATED COSTS ARE THE BUDGET OF THE PROJECT**  
**Do not confuse the Budget with the Price: the budget is what you plan to spend to implement your project, the price is the money a Customer pays to get the result of the project**

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## The time

Each activity included in a WP requires a certain time to be achieved.

The determination of the *HOW LONG it takes* is vital in the general design of the Project: most, if not all, of the project activities are dependent from each other, and the time schedule is one of the most important elements.

The time elongation of each activity MUST be discussed with its Responsible: it is a basic part of each WP, and an important element for the control of the project progress.

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## Something more

Before starting the Project detailed planning, two other elements MUST be considered:

The **RISKS** (Risk Analysis): remember Murphys ?!

The **EVA** (Economic Value Added): the project earns or loses money ? What can I do to generate wealth ?

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## Risk Analysis

*Never heard about Murphy?*



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## Risk Analysis/1

We prefer to think about **WHAT** we have to do to accomplish the Project target, and to minimize what should NOT happen to make more difficult the target achievement.

### ERROR

We **MUST** think about the **RISKS** that we can (will ?) face during the development of our Project, and put in place everything we can do to minimize, if not eliminate, the adverse situations.

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## Risk Analysis/2

### First step:

**Project Risk Analysis** to measure the

### RISK CLASS

The CLASS can be measured by:

- Identify the overall risks, through:
  - A standard check list: Country economical and political situation, Importance of the project for the Customer, Currency used, Economic Value, ...
  - A brainstorming with the stakeholder of the project (Sales people, Top Management, Technical Staff, ...)
  - Review of the past experience in the organization
- Assign a value to each identified risk (e.g. from 0 to 5)
- Sum up all the values: the final figure will give the RISK CLASS (depending on your organization rules)

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## RISK Class : a (real) example

Elenco delle domande previste	Valore (1=0 Non Significativo)
Difusione formale degli implementi (0, 1 sede in Genova, 2 Italia, 3 EU, 4 Europa, 5 extra Europa, 0 per la maturità aziendale)	
Partecipazioni a Consorzi o RTI / subcontractor complessi (Verra' assegnato un valore da 1 a 5 a seconda del numero di attori, del ruolo, della posizione dell'azienda come mandante o come mandataria, etc.)	
Complessità (del processo da gestire, del prodotto/sistema da fornire del servizio da erogare)	
Esperienza sulla Tipologia di progetto (1=sai fatto con successo più volte, 2 fatto più volte con qualche critica, 3 fatto più volte con diverse criticità, 4 fatto poche volte, 5 prima volta)	
Valore Economico del progetto (< 50 K euro, 2 tra 50 K euro e 500 K euro, 3 tra 500 e 2500 K euro, 4 tra 2500 K euro, 5>5000 K euro)	
Margine del progetto (1>50 %, 2 compreso tra 30% e 50%, 3 compreso tra 20% e 30%, 4 compreso tra 5% e 20%, 5<5%)	
Rilevanza del progetto per il cliente (1=poco rilevante, 2 rilevante, 3 business critical, 4 life critical)	
Importanza del cliente (Verra' dato un valore da 1 a 5 a seconda della strategicità del cliente)	
TOTALE	
DATA:	
FIRMA:	
AM ..... PM .....	

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## Risk Analysis/3

**Risk Analysis** is a process designed to remove or reduce the risks that threaten the achievement of the project objectives.

The Risk Analysis can be split into **two steps**:

- **Qualitative Analysis**
- **Quantitative Analysis**

## Risk Analysis: Qualitative

The **Qualitative Analysis'** main task is the **IDENTIFICATION** of the Risks.

Some large Companies usually use a check list (my former Company's version is several pages long !), which can be

- Generic, valid for all the projects
- Specific: tailored to the nature of the project

The second task is the assessment of the **OCCURRENCE PROBABILITY** (high/medium/low) and the **IMPACT on the project** (major/minor) should the risk materialise.

11

## Risk Analysis: Quantitative

The **Quantitative Analysis** main task is to **QUANTIFY** the impact of the identified risks on time, costs, performances of the project.

One of the many, possible processes is:

- Quantify the **TOTAL cost** of the activities with identified risks: **TOTAL EXPOSURE**
- Compute the probability of occurrence and weight the cost with probability: **WEIGHTED EXPOSURE** (for each WP and Total)
- Identify the **ACTIONS** required to remove or minimize the Risk impact and **THEIR COSTS**. The actions can be:
  - Preventive: trying to eliminate the risk before it occurs
  - Containment: trying to reduce the risk impact on the project
- Compute the **RESIDUAL COSTS** and add them as **CONTINGENCIES** to the overall Project Cost.

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## Risks Table

RISK CLASS:										
TOTAL EXPOSURE K €:			WEIGHTED EXPOSURE K €:							
PREVENTIVE ACTIONS COST K €:			RESIDUAL RISK K €:							
RISK TYPE	RISK N.	RISK DESCRIPTION	PROBABILITY (1-3) (A)	IMPACT Time (1-3) (B)	Costs (1-3) (A+B)	Performances (1-3) (A+B)	Risk Factor (1- (A+B))	Technical	Management	Economical- Financial
1										
2										
3										
4										
5										

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## Risk Actions Table

PREVENTIVE Actions									
Action N.	Action Description	Imported Risks	Action Cost	Residual Risk	Responsible	Start date	End date	Status and trend	N. of operator in the network
1									
2									
3									
4									
5									

CONTAINMENT Actions									
Action N.	Action Description	Imported Risks	Action Cost	Residual Risk	Responsible	Start date	End date	Status and trend	N. of operator in the network
1									
2									
3									
4									
5									

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## EVA: Economic Value Added

A Company invests money to run a project: is it profitable ?

The **Economic value added (EVA)** is a measure of a project's **financial performance**\_based on the residual **wealth** calculated by deducting its cost of capital from its operating profit, adjusted for taxes on a cash basis. EVA can also be referred to as **economic profit**, as it attempts to capture the true economic profit of a company.

Essentially, it is used to measure the value a project generates from funds invested into it. If a project's EVA is negative, it means the project is not generating value from the funds invested into the business. Conversely, a positive EVA shows a project is producing value from the funds invested in it.

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## EVA: an example

A Company invests money to run a project: is it profitable ?

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## EVA: an example

SUMMARY	AVVIO	FORMAT
<b>FORMAT PER LA VALUTAZIONE</b>		
Quadro riepilogativo		
<b>Riepilogo dati Significativi</b>		
K/Euro	Total	%
Ricavi	32.000	100%
Totali Costi	26.000	81%
Margine Lordo	6.000	18,75%
EBIT	821	3%
Markup (margini / costi)	0,23	
	VAE attualizzato al	30/09/02 1 K/Euro
	Punto di pareggio finanziario (anno)	2008
	note sul punto di pareggio:	
		WACC= xx,yy
Periodo di vita della Commissa	30/09/02 - 31/03/08	(inizio) (fine)
	VAE att. ad inizio esercizio	1 K/Euro
Massima esposizione Finanziaria	6.000	al 31/12/04
Firme di autorizzazione		
Responsabile BU	Account/Client Manager	Controllo di Gestione

February May 2025

IT Project Management

17

February May 2025

IT Project Management

1

# The IT Project Management

## Lesson 4

### Paolo Filauro

## Set Up the Project

We have obtained all the elements of our project:

- WBS, with all the required WBE/WP
- Costs
- Time
- Risks

We can now start the basic activities of a PM:

- the **SCHEDULE** of the project
- The **DRAFTING** of the **Project Management Plan (PMP)**

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2

## SCHEDULING A PROJECT

A Project is the «sum» of some (few or many) activities (WBE) linked each others in a time sequence, that starts when the Project is launched and ends when the Project achieves its objectives.

It is VITAL to have a full and realistic «picture» of how the activities are put in a timed chain.

Scheduling the project activities is highly important, as it allows to both visualize in advance the project evolution in the time, and check its progress, verifying the deviations from the original planning.

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3

## Milestones

A milestone is a **marker** in a project that signifies a **change or stage in development**. Milestones are powerful components in project management because they show **key events** and map forward movement in your project plan.

Milestones act as **signposts** through the course of the project, helping ensure we stay on track. Without project milestone tracking, you're just monitoring tasks and not necessarily following the right path in your project.

Essentially, we make the **most important events** of the project **milestones** so they can be easily seen and mapped by the project team. Milestones are given additional significance over tasks in a plan so the project manager can track the tasks while the team and stakeholders focus on forward progress.

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4

## Milestones/2

### Principali Milestones

20 Settembre 2002: firma del contratto

29 Novembre 2002: Completamento del Detailed Technical Design

Successive Milestone per Sito (qui sono legate le penali per ritardi):

New Airport	Attica
15 Settembre 2003	Fine costruzione
	24 Ottobre 2003
14 Novembre 2003	Fine Installazione
7 Marzo 2004	Consegna della Fornitura
	15 Aprile 2004
2 Novembre 2004	Accettazione Finale
	9 Febbraio 2005
	Consegna della Fornitura
1 Novembre 2005	7 Ottobre 2005
2 Novembre 2005	Accettazione Finale
	6 Ottobre 2006
	Fine Garanzia
	7 Ottobre 2006
	Inizio periodo di Assistenza Tecnica
	Inizio periodo di Assistenza Tecnica

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5

## Scheduling

There are many tools used to visualize the time schedule of a project. Two are the most diffused:

- **GANTT Chart**, introduced by Mr. Henry Gantt in 1917, named sometimes as BAR Chart
- **PERT** (Program Evaluation and Review Technique), introduced by US Navy and Lockheed in 1958

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6

## GANTT Chart

A GANTT chart, commonly used in project management, is one of the most popular and useful ways of showing activities (the WP/WBE) displayed against time. On the left of the chart is a list of the activities and along the top is a suitable time scale. Each activity is represented by a bar; the position and length of the bar reflects the start date, duration and end date of the activity. This allows you to see at a glance:

- What the various activities are
- When each activity begins and ends
- How long each activity is scheduled to last
- Where activities overlap with other activities, and by how much
- The Milestones
- The start and end date of the whole project

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7

## GANTT Chart/2

In a GANTT Chart, the WBE/WP name is on the left of the diagram, while each bar is its graphical representation put on a time grid, highlighting its duration.

To draft a GANTT Chart several tools can be used

- EXCEL: useful for small/medium size project. A nice tool to communicate the basics of a project, as EXCEL is widely available everywhere in the world
- Commercial tools: MS -Project, Primavera (now in ORACLE suite), SAP-ERP, and a lot of others, more or less sophisticated

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8

## GANTT Chart/3

Some commercial tools, as the widely used MS - Project, allow to add a sheet to each bar, containing all the other information for the WP/ WBE:

- Dependencies to other WBE/tasks (predecessors, successors)
- Required Resources (people)
- Costs (manpower, supplies)

The data contained in the sheets form the complete Data Base of the project, on which you can work to obtain all you need to manage the project.

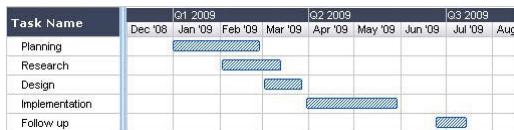
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9

## GANTT Chart/4

A simple GANTT Chart

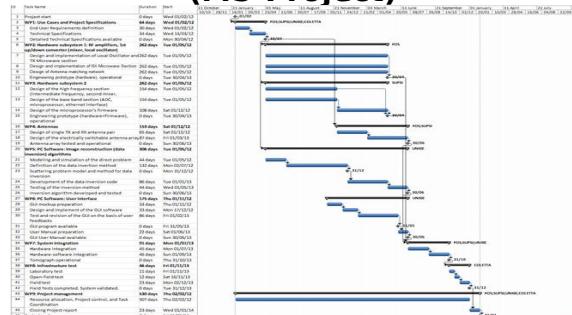


February May 2025

IT Project Management

10

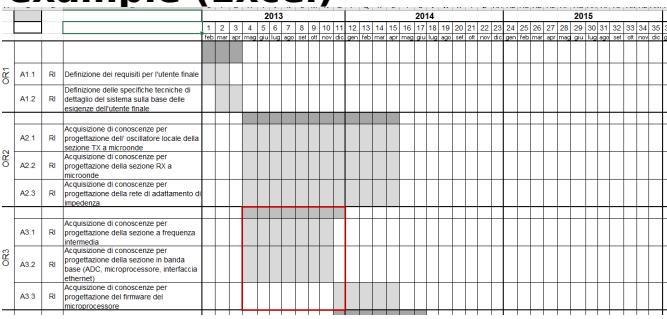
## GANTT Chart: A more complex example (MS-Project)



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11

## GANTT Chart: A more complex example (Excel)



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12

## PERT

PERT (Program Evaluation and Review Technique) was introduced by the US Navy and Lockheed in 1958 for managing the Polaris Missiles program.

PERT is based on reticular diagrams, where:

- The activities (WP/WBE) are represented by blocks with: name, start date, end date
- The blocks are connected by vectors which represent the SEQUENCE of the activities

PERT is useful to immediately understand the dependencies of the activities and the project duration.

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13

## PERT/2

PERT is a statistical method: the duration of each activity is not fixed, but estimated with three values:

- Best (optimistic)
- Realistic (more likely)
- Worst (pessimistic)

Mixing the three values, the average duration is obtained, to be considered as the official duration of the project

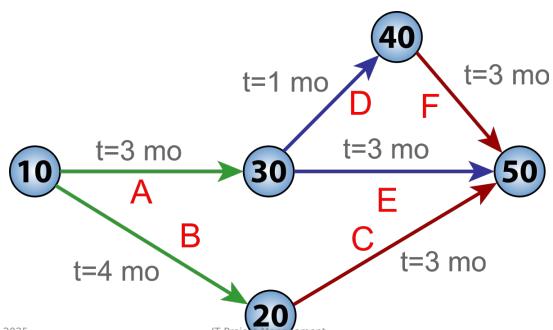
PERT is useful to define the **Critical Path**: the activities that are critical to get the final result.

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14

## PERT/3



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15

## GANTT vs PERT

The PERT diagram and the GANTT Chart are both useful tools to manage a project.

For better understanding the dependencies from each other of the activities, PERT is more useful: they are evident at a glance

The time flow of the project is better understandable with GANTT chart: you «see» the timing of the project and the duration of each task. Less evident the dependencies: some tools, as MS-Project, introduced the concept of predecessor/successor in a graphical way.

The activities data (duration, costs, etc.) are included in the task sheet available in both methodologies.

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16

## Critical Path Method

The CPM (Critical Path Method) is another methodology to manage a project.

Introduced in 1950, it is defined as:

*The sequence of the activities included in the logical net of a project which sets the project duration.*

It is the longest sequence of the activities included in logical net which must be completed on time to achieve the (contractual) timing.

PERT is an evolution of the Critical Path Method.

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17

## CPM/2

The basic steps:

- For each activity (remember the WBS) define the *earliest start date* (as soon as possible) and the *earliest finish date* (depending of the duration), this being the earliest date your task can be completed.
- Figure out what the *latest start date* is for each activity. This is the very last minute in which you can start a task before it threatens to upset your project schedule. And you need to calculate what the *latest finish date* is for the same reason.
- Define, for each activity, a *slack*, how long a task can be delayed before it impacts the planned schedule and threatens the project's deadline.

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18

## CPM/3

The definition of the Critical path can now be done:

- By hand, using paper and pencil: possible for short and simple projects.
- Using a commercial tool: better to avoid mistakes in large and complex projects.

The CPM is useful to identify the critical tasks: a particular care shall be devoted to them.

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19

## CPM/4: a (simple) example



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20

## MS Project

A few words about one of the most popular tools used to schedule a project **MS Project**, a part of the MS Office suite.

This application is a combination of the three different methodologies we approached above

It starts as a BAR chart (Gantt), to which several information typical of PERT/CPM can be added: the Arrows that give the predecessor/successor info and the possibility to immediately identify the Critical Path of a project.

Some other commercial product offer the same characteristics, as Primavera.

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21

# The IT Project Management

## Lesson 5

### Paolo Filauro

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1

## Communication

One of the main tasks for a Project Manager is:  
**Communicate**

With:

- The stakeholders of the project: The Shareholders (for very large and important projects), the Company's Top Management, the Company's middle Management involved in the project
- The Project Team
- The Responsibles of the activities required to achieve the project scope

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2

## Communication/2

The Project Manager should (must) communicate:

- At the **beginning** of the project, through a single, comprehensive and official document, the

### Project Management Plan

- When the project is ready to start, through a formal

### Kick off Meeting

- During the development of the project, through a regular issue of officials

### Reports

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3

## Project Management Plan (PMP)

The **Project Management Plan** (PMP) is an **essential, official document** that details all the policies, procedures, processes, and other organizational rules that the Project will follow to achieve the Project's outcomes.

The PMP includes both Project planning and execution activities and thus acts as a guide for the project. Also, as the PMP has the potential to include a lot of information, the PMP development takes time as the plan is progressively elaborated

As detailing all such information isn't usually possible in one document, the PMP lists all the documents that are required to help the project manager to manage, execute, and control the project to achieve its objectives.

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4

## Project Management Plan (PMP)/2

The PMP should include the following key sections and topics:

- Project overview and strategy (includes Project definition and scope)
- Project dependencies and constraints
- Project roadmap
- Project governance (although in some cases the Project governance plan is documented separately)
- Organizational structure
- Project planning processes
- Project control processes
- Project execution processes (component and project management, schedule management, communications management, procurement management, etc.)
- Transition management processes (if any)
- Closeout processes
- Key Deliverables
- Risks and Assumptions
- etc.

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5

## Project Management Plan (PMP)/3

The Table of Contents is:

1. BACKGROUND AND REFERENCES  
(Delivery Object, Customer, Expected Results, Project Class, Contractual Documents)
2. PROJECT ORGANIZATION  
(PBS, ABS, OBS, WBS, Purchasing Plan, Measure and Control Methodologies, Reporting)
3. SUPPORTING MANAGEMENT ACTIVITIES  
(Risks Management, Quality Management, Development, Configuration Management, Acceptance Criteria/Testing)
4. MASTER PLAN
5. TECHNICAL BUDGET  
(Costs/Revenues/Margins, Economic Plan, Costs per Nature, Costs per Destination, Manpower per Origin, External Costs Plan, Invoicing and Cashing, EVA)

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6

## Project Management Plan (PMP)/4

Progetto ELTA: Centri di Salonicco e Patrasso

Project Management Plan

Cod.: MEFBK000 rev. 1.0 Data: Settembre 2006

Sommario Questo documento contiene l'organizzazione del programma per la fornitura chiavi in mano dei due Centri Postali di Salonicco e Patrasso, con particolare attenzione alle specifiche esigenze della realizzazione delle attività e gli indirizzi economici/finanziari di commessa

Redatto e Controllato:

P.Filippo (PM)

Approvato:

GAU (A. Avgillano)

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7

## Project Management Plan (PMP)/5

### INDICE

1. BACKGROUND E RIFERIMENTI  
1.1 Oggetto della Fornitura  
1.2 Il Cliente  
1.3 Obiettivi Aziendali  
1.3.1 Strategici  
1.3.2 Tattici  
1.3.3 Economici  
1.4 Classificazione Del Progetto  
1.5 Documenti Contrattuali di Riferimento
2. STRUTTURAZIONE DEL PROGETTO  
2.1 OBS  
2.2 Interface  
2.3 ABS  
2.4 PBS  
2.5 WBS
3. Acquisti e capioli  
3.1 Acquisto di Apparecchiature  
3.2 Acquisto di Servizi  
3.3 Metodologie di misura e controllo  
3.4 Reporting
4. MASTER PLAN  
4.1 Piano contrattuale  
4.2 Piano generale e relative Milestones

3. ATTIVITÀ MANAGERIALI DI SUPPORTO  
3.1 Risk Management  
3.2 Quality Management  
3.3 Development  
3.4 Configuration Management  
3.5 Criteri di accettazione/colaudati  
3.6 Phase Reviews
4. MASTER PLAN  
4.1 Piano contrattuale  
4.2 Piano generale e relative Milestones
5. PREVENTIVO TECNICO  
5.1 Costi/Ricavi/Margini  
5.2 Piano economico  
5.3 Piano Costi Esterri  
5.4 Fatturazioni e incassi  
5.5 Analisi VAE

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8

## The Kick off Meeting

The Kick Off Meeting is the **formal start** of a project. It is a **crucial moment** in the Project lifecycle

The Attendants should be:

- The project **Stakeholder**: the Company management, in case the Project is of high importance
- The **Responsibles** of the Teams involved
- The main human **Resources**: who will develop the Project
- The Project Management **staff**

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9

## The Kick off Meeting/2

A succesfull KoM should :

- Introduce the Attendants (if required)
- Summarize the Project, as described in the PMP: Customer, Scopes and Targets, Timing, Costs, Milestones, Risks, EVA, .....
- Introduce the Project Team
- Discuss and Make clear the Roles and responsibilities of the Attendants
- Explain the time schedule and the main Deliverables
- Q&A
- Launch formally the Project
- **Get the blessing of the Bosses (very important !!!)**

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10

## Manage a Project

Once planned (and formally started), a Project **MUST be managed** in term of:

- **Activities progress**
- **Costs Analysis**
- **Risks Management**

As a plan is designed to not be abided by, we should:

- **Reprogram**

And, as we work in an organization:

- **Report**

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11

## Activities' progress

- **Evaluate** «where we are» in term of **completed** and **in progress** activities
- **Compare** the current situation with the planned one
- **Verify** the milestones (if planned)
- **Control** the costs
- **Reprogramming** the remaining activities to the project end.

**Remember:** the management of the project activities based **only** on progress and time, **without** the COST control generally ends in a **very poor** project control. Thus the importance of the **Earned Value Management (EVM)**.

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12

## Progress control methodologies

Many are the ways to control the development of a project in term of time and progress, to be adapted to the different situations.

- Management Assessment: depend on the PM «feeling» (to be avoided: not trusty)
- Milestones achievement (how many milestones are required ?)
- 50/50: a just started task is 50% completed, the other 50% at the end
- 0/100: a task is considered completed only when finished
- Analytical Analysis
- A mix of above

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13

## Progress control methodologies/2

### Cost Analytical Analysis

For each planned task (a leaf of the WBS) we can obtain:

- The **cost** of the **manpower** used up to the control moment: in general, what a DataBase contains are the costs of the hours spent for the task. Each person has an hourly cost: the total of the hours per the cost is what is in the db. The consumption of the hours/costs at the control moment is the task progress. The importance of a single dB !
- The **costs** related to the **supply** of third party (equipments, consultancies, etc.) can be measured with the 50/50 methodology. 50% when the task starts (order to the purchasing dept), 50% at the delivery Is it possible to assume that a progress in costs is a progress in task development ?

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14

## Risks Management

When planning the project, some risky task was identified and the risk table of the project, included that risk, completed.

For each risk we have: probability, preventive actions, containment actions, CONTINGENCIES (costs added to the project budget for implementing the actions and/or the acceptable, residual risk).

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15

## Risks Management/2

During the development of the project the risky task is met. We will:

- Find that the risk did not occur, by itself: we were pessimistic, but cautious. We should RELEASE the contingency, increasing the margin of the project (should ....)
- The risk is occurring (or near to occur): we launch the Preventive actions (identified and budgeted during the Risk analysis), and bear the related costs to eliminate the risk. The residual contingency (if any) could be released to increase the project margin (should ...)
- The risk is alive: we launch the Containment actions reducing the risk impact. The contingency (fully used) and the (budgeted) residual risk cost can not be released (and the margin does not increase)

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16

## The IT Project Management

### Lesson 6

#### Paolo Filauro

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1

## The EVM methodology

What is **Earned Value Management**? **Earned Value Management (EVM)** is a project management methodology that integrates schedule and costs, to measure project performance. Based on planned and actual values, EVM help to predict the future and enables project managers to adjust accordingly.

The methodology was introduced more than 120 years ago for financial analysis and used for the first time in project management in 1960 by the US DoD to verify the status of their projects in term of costs and schedule.

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2

## The EVM methodology/2

The basic principle of earned value management (EVM) is that **the value of the piece of work is equal to the amount of funds budgeted or used to complete it.**

It helps the PM to answer some important questions:

- Have we got to where we want (planned) to be in the project ?
- How efficient are we in the development of the project ?
- When are we going to finish this project ?

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3

## EVM/1

The EVM is based on the **Earned Value** concept compared with other cost parameters

- **BCWS (Budget Cost of Work Scheduled).** The BCWS is the planned budget for the planned activities that have to be performed at a certain point of the project development.
- **BCWP (Budget Cost of Work Performed).** The BCWP is the quantification of the planned value of the work actually performed up to a certain date and refers to what was achieved during the project development. It corresponds, by definition, to the **EARNED VALUE**, and it is obtained from the budget and the activities progress evaluation
- **ACWP (Actual Cost of Work Performed).** The ACWP is the real cost incurred for the execution of the projects up to a certain date. This value refers to what has actually been spent.

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4

## EVM/3

Comparing the BCWS, BCWP, ACWP, we get some important information about the «health» of the project.

### VARIANCE INDEXES

- $BCWP - BCWS = \text{schedule variance (SV)}$
- $BCWP - ACWP = \text{cost variance (CV)}$

### PERFORMANCE INDEXES

- $BCWP/BCWS = \text{Schedule Performance Index (SPI)}$
- $BCWP/ACWP = \text{Cost Performance Index (CPI)}$

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5

## EVM/4

The meaning of

### SCHEDULE VARIANCE : $SV = BCWP - BCWS$

- If SV is negative, the project is behind schedule.
- If SV is zero, the project is on schedule
- If SV is positive, the project is ahead of schedule.

### COST VARIANCE : $CV = BCWP - ACWP$

- If CV is negative, the project is over budget
- If CV is zero, the project is on budget
- If CV is positive, the project is under budget

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6

## EVM/5

The meaning of some INDEXES:

### SCHEDULE PERFORMANCE INDEX: $SPI = BCWP/BCWS$

- If  $SPI < 1$ , the project is behind schedule
- If  $SPI = 1$ , the project is on schedule
- If  $SPI > 1$ , the project is ahead of schedule

### COST PERFORMANCE INDEX: $CPI = BCWP/ACWP$

- If  $CPI < 1$ , the project is over budget
- If  $CPI = 1$ , the project is on budget
- If  $CPI > 1$ , the project is under budget

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7

## EVM/6

Two other indexes (we will meet them later):

### ESTIMATE TO COMPLETE (ETC)

It is a forecasting technique used to predict the additional costs required to finish all remaining project tasks  
This value tells the Project Manager **how much money** must be spent from this point forward, to complete the project.

### ESTIMATE AT COMPLETION (EAC)

It is the extrapolation of the current project status to the end of the project and is equal to the amount of money already spent on the contract plus the amount of money it will take to complete the contract.  
This value tells the Project Manager **what the overall project budget** will be if everything else went according to plan.

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8

## The EVM methodology: the S Curve

The Earned Value Management combines the control of the project **timing** AND its **costs**

A quick way to look at the EV is the analysis of the S Curve

Definition:

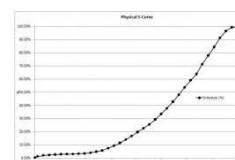
In project management terms, an s-curve is a mathematical graph that depicts relevant cumulative data for a project—such as cost or man-hours—plotted against time.

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9

## The S-Curve

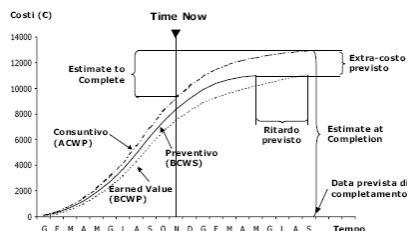


February May 2025

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10

## EVM with the S Curve



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11

## Manage the project

The methodologies introduced above have a single, important TARGET:

**Support** the Program Manager in

- **Understanding** the REAL situation of the Project in term of costs and time (hopefully the performances will be achieved)

- **Implementing** all the measures required to put (again) the project into the right path to be successfully completed

- **Re-programming** the project if required (a fact of life !), without affecting (possibly) the contractual finish date.

KEEP THE PROJECT UNDER CONTROL

## An Exercise

## EVM Exercise

A simple exercise: for a simple and not true (!) project, with 10 tasks, lasting 10 months, at a certain point of the project life (end of month 5), evaluate:

BCWS (full life)

BCWP at the date

ACWP at the date

SPI and CPI indexes at the date

S-Curve

Using EXCEL

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13

February May 2025

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14

## The EVM Exercise: the data

Task #	Start date	Finish date	BCWS	Cost distribution	Task Progress % (per month)	BCWP at control date	ACWP at control date
1	start month 1	end month 1	50	linear	100%	to be calculated	m1: 50
2	start month 2	end month 3	100	linear	m2:0,7 - m3: 0,8	to be calculated	m2: 70 - m3: 70
3	start month 3	end month 5	200	linear	m3: 0,7 - m4: 0,7 - m5: 0,7	to be calculated	m3: 90 - m4: 90 - m5: 90
4	start month 4	end month 5	200	linear	m4: 0,7 - m5: 0,7	to be calculated	m4: 120 - m5: 120
5	start month 5	end month 7	400	linear	m5: 0,7	to be calculated	m5: 160
6	start month 6	end month 8	500	linear			
7	start month 8	end month 9	200	linear			
8	start month 9	end month 9	50	linear			
9	start month 9	end month 10	200	linear			
10	start month 1	end month 10	200	linear	100%	to be calculated	100
CONTROL DATE		end of month 5					

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15

## The EVM Exercise: Hints

- First step: draw the project GANTT chart (project # on the left column, time on the upper row)
- Allocate the planned costs to each project and each month (linear distribution of costs)
- Obtain the total costs per month, and calculate the cumulative costs: get the graph (costs on y axis, time on x axis). The BCWS S Curve
- For each month from 1 to 5 calculate the earned costs (how ?). Put the cumulative data in the graph. The BCWP S Curve
- For each month from 1 to 5 assign the ACTUAL costs. Put the cumulative data in the graph. The ACWP S Curve
- Calculate: Schedule Variance, Cost Variance, SPI and CPI

# The IT Project Management

## Lesson 7

### Paolo Filauro

## An Exercise

February May 2025

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1

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2

## Communication/2

The Project Manager should (must) communicate:

- At the **beginning** of the project, through a single, comprehensive and official document, the

### Project Management Plan

- When the project is ready to start, through a formal

### Kick off Meeting

- During the development of the project, through a regular issue of officials

### Reports

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3

## Reporting

A **project status report** is a critical part of an effective project communications and management **strategy** to update your project team, sponsors and stakeholders.

The target of reporting is to pass *the right information to the right people*, about the project status, the required actions, the involved responsibilities.

It's a **vital communication tool**, and it can provide a documented history of the project, which makes planning for next projects easier.

Remember: the Report is an official and formal document

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4

## Reporting/2

The reporting «users» should be:

- The project Sponsors (the Company Executives), interested in:
  - The general status of the project, and the planned deliverables
  - How the project team is working to achieve the project requirements
  - Which are the risks/problems occurred and how they have been mitigated/solved
  - The economic/financial status
- The Team Project, interested in:
  - Which are the inefficacy and inefficiency areas of the project
  - Who must identify and implement the corrective actions
  - Which will be the possible modifications to the project plan

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5

## Reporting/3

To be **effective** the Project Report must :

- Have a **fixed frequency**: weekly, monthly ? It depends on the duration of the project
- Have a standard **format** (for the project or the Company)
- Define the **metrics** used to communicate the project data
- Identify the **responsibilities**, at all levels

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6

## Reporting/4

An example of **format** (Table of Contents)

### 1. Current status of the project

1. Progress
2. Situation

### 2. Semaphores

1. Red lights
2. Yellow lights

### 3. Milestones

1. Achieved in the period
2. Planned in the next period

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7

## Reporting/5

Format (Table of Contents) continued:

4. Main Problems (Risks and more)
  1. Occurred in the period, how fixed
  2. Forecasted in the next period (and how to fix them)
5. Invoices and revenues
  1. Invoices, in the period and planned in the next one
  2. Revenues, in the period and planned in the next one
6. Costs
  1. Period balance
  2. Extra-costs and minor costs

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8

## Reporting: a real TOC

### Programma ELTA

Report Mensile :

#### \*Stato corrente del Programma

- 1.Avanzamento
- 2.Situazione
- 3.Semafori rossi

#### \*Milestone

- 1.Raggiunte nel periodo
- 2.Pianificate nel periodo successivo

#### \*Problemi principali

- 1.Incontrati nel periodo
- 2.Previsti nel periodo successivo

#### \*Fatturazioni e incassi

- 1.Fatturazioni
- 2.Incassi

#### \*Costi

- 1.Consuntivi
- 2.Extracosti e minori costi

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9

## Project Management Tools

The market offers a huge amount of tools to support the Program Manager in her/his (difficult) job.

All of them propose the standard PM activities: Plan, Control, Report.

Most of them are quite cheap: few hundreds Euros to buy. Names:

*Wrike, Favro, Teamwork, Productboard, Celoxis, Resource Guru, Twproject , Soro, Asana, and many, many others*

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10

## Project Management Tools/2

The most widely used, as far as I know:

**MS - Project**: a Microsoft product, introduced in the early '90. Complete, usable at different levels, expensive. A standard tool for MS based organizations: good to share information. Expensive: 950 € for the Standard product

**SAP ERP/PS (Project System)**: a part of the SAP platform. Less flexible than MS Project, but if your Company uses SAP, best choice (unique DataBase !). Difficulties to share information. Expensive

**Primavera P6 EPPM (Enterprise Project Portfolio Management)**: a part of the Oracle offer. Complete, cloud based, web based. Expensive: annual fee

**Prince 2 (PRojects IN Controlled Environments)** : a standard tool in UK, particularly near the Government Organizations (must be certified)

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11

February May 2025

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1

# The IT Project Management

## Lesson 8

Paolo Filauro

## The history of a real project: the ELTA Project



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2

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3

## The Players

**ELTA (Ελληνικά Ταχυδρομεία)** is the Greece Postal Organization who planned to introduce, in early 2000, postal mechanization in their Country, exploiting a huge funding by the European Community.

**Elsag** is a Genoa based subsidiary of Finmeccanica (now Leonardo), and is one of the biggest Postal Mechanization Systems suppliers in the world. Elsag is organized for *projects*, thus the importance assigned to the project management roles and techniques.

## The preliminary steps

At the end of last century, ELTA issued a **Tender** for the turnkey delivery of several Postal Mechanization Plants: Athens (Airport and Attica), Thessaloniki, Patras.

The request was for normal mail, registered mail, large envelopes and magazines, small packets, and included the studies for organizing the postal flow in the Country (Postal Engineering).

**Elsag** answered the Tender presenting its **Bid**, a preliminary technical and financial offer.

In 2002 Elsag won the delivery and signed with ELTA a MoU to start the final negotiations. As a consequence, the PM was immediately appointed, and participated to the final negotiations.

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4

The contract was signed in September 2002: that was our T0 in the project.

The SOW was discussed and signed immediately after: the project could start.

The SOW covered all the technical and financial points of the contract, and included the official timing, with the main **milestones**; absolutely important as the payments were according to the achievement of them.

**The program official language was Greek: all the formal documents were in Greek, translated, not officially, into English (generating some troubles)**

## The SOW

## A short video

An animated overview of the Athens Attica Sorting Center

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6

## The contractual timeschedule/1

### Phase 1: Athens New Airport - Attica

T0: September 2002

#### Athens New Airport

Equipments Delivery : T0 + 12 months (September 2003)

Olympics

Delivery Completion: T0 + 18 months (March 2004)

Final Acceptance: T0 + 26 months (October 2004)

End of Guarantee: T0 + 36 months (October 2005)

#### Attica

Equipments Delivery : T0 + 14 months (November 2003)

Delivery Completion : T0 + 27 months (December 2004)

Accettazione finale: T0 + 33 months (June 2005)

Fine Garanzia: T0 + 45 months (June 2006)

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7

## The contractual timeschedule/2

### Phase 2 (Thessaloniki - Patras)

#### Thessaloniki

**To: May 2006**

Equipments Delivery : T0 + 12 months (May 2007)  
 Delivery Completion : T0 + 21 months (January 2008)  
 Final Acceptance: T0 + 29 months (September 2008)  
 End of Guarantee: T0 + 41 months (September 2009)

#### Patras

**To: February 2007**

Equipments Delivery : T0 + 8 months (October 2007)  
 Delivery Completion : T0 + 21 months (February 2008)  
 Final Acceptance: T0 + 29 months (October 2008)  
 End of Guarantee: T0 + 41 months (October 2009)

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8

## Starting a project/1

Before the actual project management activities start, we should examine some preliminary topics. And answer some questions:

- The «**scenario**» in which the project will be developed
- **What** we have to do: the Statement of Work (SOW) and the Product Breakdown Structure (PBS)
- **Which** are the required **activities**: the Activity Breakdown Structure (ABS)
- The required **human resources**: the Organisation Breakdown Structure (OBS)

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9

## The Scenario

Where we are ?

#### First:

The project is related to the **Turnkey Delivery** of several Postal Mechanization PLANTS, including the Postal Engineering

#### Second:

The Customer is a **Government Company, Abroad** (they speak mostly Greek, only a few speak english: an interpreter was generally required. All the documents had to be in Greek)

#### Third

The project is

- **Vital and Critical** for the Customer
- **Highly** important for the Company

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10

## PBS

**What** we have to do ? The Thessaloniki PBS Table (in italian, from

#### Appendice 3 PBS

##### Sito Salonicco

Preparazione Sito  
 Fornitura 2 Macchine OCR/VCS con Stackers Bipiano  
 Fornitura 1 Macchine LSM con Stackers Bipiano  
 Fornitura Macchina CFSM, con 3 AI e 1 MI  
 Fornitura Macchina FC  
 Fornitura Macchina SAS  
 Fornitura Sistema di Supervisione Impianto  
 Piano logistico di sito  
 Trasferimento personale all'automazione  
 Manuali  
 Fornituzione Personale  
 Assistenza al Responsabile di Sito per la Gestione  
 Assistenza tecnica durante il periodo di verifica finale  
 Garanzia

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11

## ABS

Which activities are required ? Thessaloniki ABS table (in italiano, from the PMP)

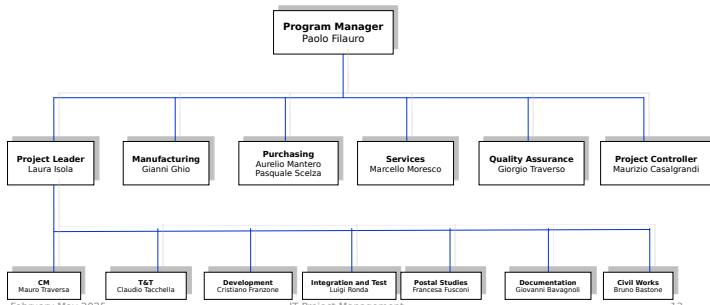
#### Appendice 1 ABS

Gestione del Progetto	Schemi di smistamento
Attività di PM	Gestionali
Fatturazione	Costruzione macchine Elsag
Gestione rischi	Acquisto macchine terzi
Manutenzione Progetto	Personalizzazioni
Sito	Spedizione
Sviluppo Impiantistica	Imballi
Lay-out	Spedizione
Quadri elettrici	Attività in Sito
Distribuzione reti potenza e segnali	Installazione macchine, reti, PC e Servers
Rete telefonica locale	Integrazione
Modifica sito	Commissioning
Installazione quadri e reti	Test con Cliente
Modifica e adeguamento locali	Training personale
Verifica tecnica e normativa	Gestione trasferimento personale alle lavorazioni
Studi postali	automatizzate
Logistica	Assistenza alla gestione del Centro
	Assistenza tecnica nel periodo di test finale
	Assistenza tecnica e gestione ricambi in garanzia

12

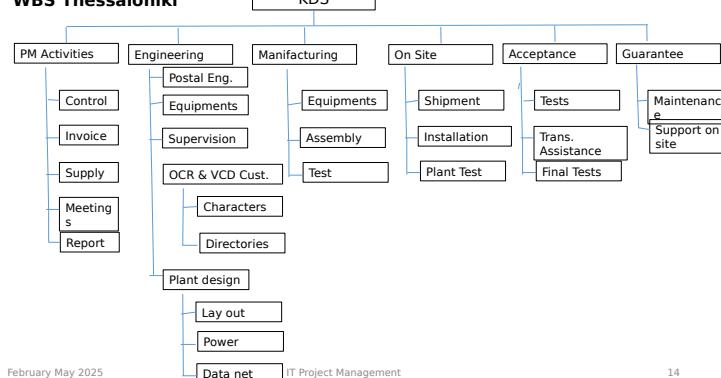
## OBS

**Who** will perform the activities ? The Thessaloniki OBS (from the PMP)



13

## WBS Thessaloniki



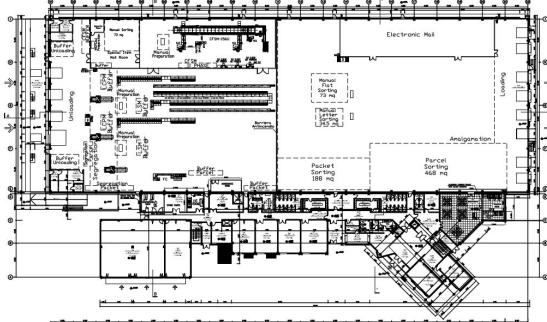
14



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15

# The Thessaloniki Postal Sorting Center



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16

## RISK Class

### DETERMINAZIONE CLASSE DI RISCHIO

La classe di rischio del progetto è determinata in base al valore totale delle risposte fornite considerando che a ciascuna risposta verrà dato un punteggio e che il punteggio dato a ciascuna risposta andrà da un valore minimo di 1 ad un massimo di 4 o 5 (vero attributo)
Classe A e il valore risposte = o supera a 25
Classe B se il valore risposte = o supera a 13 < di 26
Classe C se il valore risposta < di 13
Nel caso in cui il risultato definito la classe come la C e' faccio d' AM o PMSM poter effettuare ugualmente l'analisi del rischio seguendo i passi descritti per le classi A e B.

Diffusione territoriale degli impiantoper (1 sede in Genova, 2 Italia, 3 EU, 4

Partecipazioni a Consorzi e RTT / subcontractor complessi (Venti assegnato un

valore da 1 a 5 a seconda del numero di attori, del ruolo, della posizione

Complessità del processo da gestire, del prodotto/sistema da fornire, del

livello da erogare) 1 semplice, 2 medio, 3 complesso, 4 molto complesso

Esperienza sulla Tipologia di progetto (1'grado fatto con successo più volte, 2

partecipazione a progetti simili, 3 fatto con successo in diverse criticità, 4 fatto

pochi volte, 5 prima volta)

Valore Economico del progetto (1< 50 milioni, 2> 50 milioni e 500 mila, 3 tra

500 mila e 1 milione, 4> 1 milione, 5> 500 milioni)

Margine del progetto (1> 50%, 2 compreso tra 30% e 50%, 3 compreso tra 20%

10%, 4 compreso tra 10% e 20%, 5< 10%)

Rilevanza del progetto per il cliente (1'piccolo rilevante, 2 rilevante, 3 business

critical, 4 life critical)

Stretchezza del tempo (verrà dato un valore da 1 a 5 a seconda della

strettezza del cliente)

TOTALE **25**

CLASSE RISCHIO **B**

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17

## Risk Table/1

CLASSE DI RISCHIO: B			ESPOSIZIONE TOTALE K €: 730			ESPOSIZIONE PONDERATA K €: 196			RISCHIO RESIDUO K €: 72			
COSTO AZIONI PREVENTIVE K €: 60												
TIPO DI RISCHIO	MM RISCHIO	DESCRIZIONE RISCHIO	Probabile	Tempo(1-3)	Contro(3)	Prestazioni (1)	Favorevoli (3)	Adverso (1)	ESPOSIZIONE RISCHIO	Teorico	Generale	Economico - Residuo
Impatto sull'organizzazione del Cliente (diminuita disponibilità della macchina/utensili)	1	Non rispondenza ai requisiti attesi dal Cliente/ interventi di risorse Estrig.	1	-	2	-	2	45	730	150	30	72
Impatto sull'organizzazione del Cliente (diminuita disponibilità della macchina/utensili)	2	Dificoltà di accettazione da parte degli operatori del SII, con conseguente perdita di produttività (assimilazione al management piano di smistamento aggiornato, reportetti postali)	1	1	2	-	2	16	730	80	16	72
Innovazione tecnologica e dipendenza dalla Tecnologia IT del Cliente (diminuita disponibilità introduzione di T&T)	3	Dificoltà di sviluppo, messa a punto e integrazione con sistema Cliente con necessità di ulteriori sviluppi o interventi in sito	1	1	3	-	3	40	730	200	60	72
Penali	4	Applicazione di penali per non raggiungimento delle prestazioni contrattuali	1	-	3	3	3	90	730	300	90	72

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18

## Risk Table/1

Azioni di PREVENZIONE															
Nome Azione		DESCRIZIONE DELL'AZIONE			Rischio Iniziale		Costo dell'azione		Rischio residuo		Responsabile	Data di avvio	Data di fine	Status e trend	N° identificati operazioni risolutive
1		Precisa definizione delle specifiche dei requisiti e dei test			1	30					DTS				
2		Precisa definizione delle specifiche di integrazione con sistema Cliente			4	30	5				DTS				
Azioni di CONTENIMENTO															
Nome Azione		DESCRIZIONE DELL'AZIONE			Rischio Iniziale		Costo dell'azione		Rischio residuo		Responsabile	Data di avvio	Data di fine	Status e trend	N° identificati operazioni risolutive
1		Supplemento di training e di assistenza al management			2	7	-								
2		Interventi per ridurre l'ammontare di penali a fronte di mancate prestazioni (d'rischio residuo o relativa a penali non evitati) Riconoscimento dell'assistenza tecnica ed informatica			4	20	40								

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19

## EVA

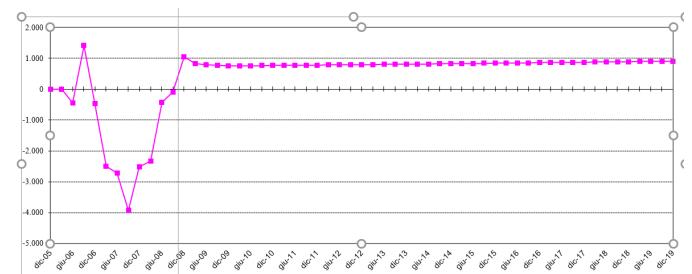
SCHEDA DI SINTESI DELL'INIZIATIVA		
Divisione:	DAU	Data di Redazione: 20-set-06
Oggetto:	Fornitura chiavi in mano di due Centri di smistamento postali in Grecia: Salonicco (inclusa la funzione T&T periferico e centrale) Patraso	
Milestone di faturazione:	Sottoscrizione: Ottobre 2007, Aprile, Ottobre 2008 Pubblico: Febbraio, Giugno, Dicembre 2008 Accettazione Fina: Novembre Ottobre 2008, Fine Garanzia: Salonicco Ottobre 2009, Patraso Dicembre 2009	
Delivery Time:		
Sintesi dati economici in K euro		
<u>Totale</u>		
Prezzo di Offerta Autorizzato	14102,00	
Educa Costruire	14102,00	% 100,00%
Ricavi	14102,00	\$1,65%
Costi	11507,00	18,57%
Margine di Contribuzione	2595,00	9,24%
EBIT	1208,58	
<u>Condizioni di incasso (gg)</u>		
VAF di commessa (K euro)	235	
VAF % sui ricavi	1,67%	
<u>Margini di contribuzione</u>		
Marg. Di Contrib. medio di Divisione (rif. Ordini new Budget 2006)		
Marg. Di Contrib. medio di Linea (rif. Ordini new Budget 2006)		
Costo lavoro est. in % (su costo trasformato.)		

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20

## EVA: Net Financial Exposure



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21

## The Costs

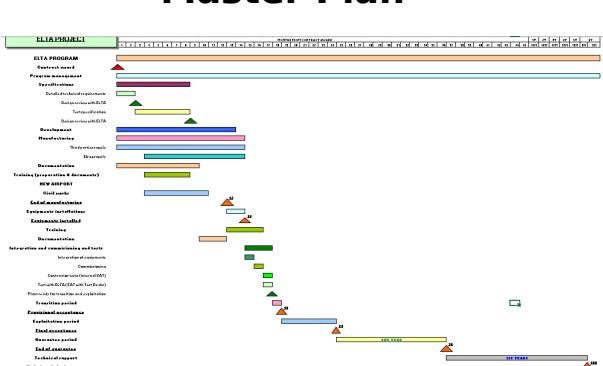
WBS	Nome	POA
XXYYQOZ	WMS Project	24633
WP 1	Engineering	3477
WP 2	Further Studies	631
WP 3	Management and control	6234
WP 4	Quality Control	2
WP 5	Plant 1	2716
WP 5.1	Plant Engineering	248
WP 5.2	Equipments Manufacture	530
WP 5.3	Purchasing	900
WP 5.4	Training	47
WP 5.5	Manuals	40
WP 5.6	Safety Stock	288
WP 5.7	On site activities	393
WP 5.8	Post guarantee Assistance	210
WP 6	Plant 2	1173
WP 6.1	Plant Engineering	50
WP 6.2	Equipments Manufacture	4716
WP 6.3	Purchasing	4073
WP 6.4	Training	53
WP 6.5	Manuals	149
WP 6.6	Safety Stock	542
WP 6.7	On site activities	1165
WP 6.8	Post guarantee Assistance	140
Result	<b>Total</b>	<b>24633</b>

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22

## Master Plan

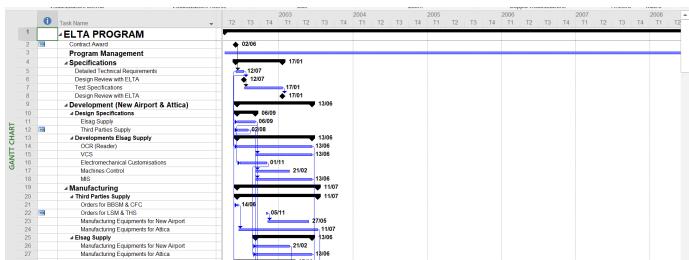


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23

## Master Plan/1

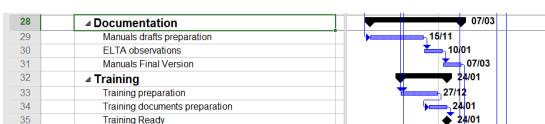


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24

## Master Plan/2

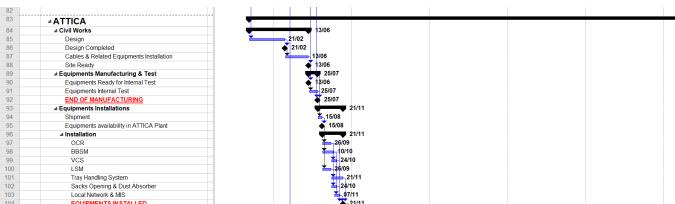


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25

## Master Plan/3

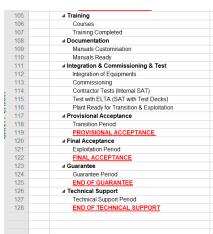


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26

## Master Plan/4



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27

## The PMP



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28

## Project Management Plan (PMP)/5

### INDICE

- 1. BACKGROUND E RIFERIMENTI
  - 1.1 Oggetto della Fornitura
  - 1.2 Il Cliente
  - 1.3 Obiettivo Ateci
  - 1.3.1 Strategici
  - 1.3.2 Operativi
  - 1.3.3 Economici
  - 1.4 Classificazione Del Progetto
  - 1.5 Documenti Contrattuali di Riferimento
- 2.5 STRUTTURAZIONE DEL PROGETTO
  - 2.1 OBS
  - 2.2 Interface
  - 2.3 ABS
  - 2.4 PBS
  - 2.5 WBS
  - 2.6 Acquisti rapidi
  - 2.6.1 Acquisto di Apparecchiature
  - 2.6.2 Acquisto di Servizi
  - 2.6.3 Metodologie di misura e controllo
  - 2.8 Reporting

- 3. ATTIVITÀ MANAGERIALI DI SUPPORTO
  - 3.1 Risk Management
  - 3.2 Quality Management
  - 3.3 Development
  - 3.4 Configuration Management
  - 3.5 Criteri di accettazione/collaudo
  - 3.6 Phase Reviews
- 4. MASTER PLAN
  - 4.1 Piano contrattuale
  - 4.2 Piano generale e relative Milestones
- 5. PREVENTIVO TECNICO
  - 5.1 Costi/Ricavi/Margini
  - 5.2 Piano economico
  - 5.3 Piano Costi Esterni
  - 5.4 Fatturazioni e incassi
  - 5.5 Analisi VAE

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29

## The IT Project Management Lesson 9 Paolo Filauro

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## The history of a real project: the ELTA Project



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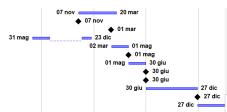
2





## Master plan v11/2

74	Training in Attica
75	Availability of Manuals - For Attica Sorting Center
76	Availability of Power from the Main Line
77	Implementation of the Project in the Attica Exports
78	Transition Period
79	Termination Targets by the Contractor
80	Preparation of the Protocol of Provisional Acceptance by ELTA
81	Protocol of Provisional Acceptance issued by ELTA
82	<b>ELTA PROVISIONAL ACCEPTANCE</b>
83	Period between Provisional and Final Acceptance
84	Guarantee Period
85	<b>END OF GUARANTEE</b>
86	Technical Support
87	<b>END OF TECHNICAL SUPPORT</b>



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19

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20

## An important step: the transition



## An important step: the transition

### KDA Transition



#### Agenda

- Transition Targets
- Transition Plan Overview
- Elsag Team (by Elsag)
- ELTA Team (by ELTA)
- Communications
- Week 1 detailed schedule
- Q&A

KDA Transition Kick-off – Athens , March 1, 2007

219

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21

## Attica Opening Day ceremony



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22

## Final Report

ASTI/OAS  
Genova, Dicembre 2008

### PROGETTO ELTA

Report Finale

#### SOMMARIO

Report Finale del Progetto ELTA: obiettivi pianificati e risultati raggiunti sotto gli aspetti strategici, tecnici, economici e di soddisfazione del Cliente.

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23

## Final Report: Conclusions

#### 4 CONCLUSIONI

Il Progetto ELTA ha sostanzialmente raggiunto gli obiettivi che erano stati posti al suo avvio.

Dal punto di vista tecnico, sono stati forniti apparecchi pienamente rispondenti alle necessità del Cliente, correttamente utilizzati da personale ELTA debitamente formato. In aggiunta alla fornitura di apparati, ElsagDatamat ha offerto un importante supporto professionale che ha visto una attività di tipo consulenziale applicata ai diversi aspetti dell'introduzione della meccanizzazione nel flusso generale della corrispondenza.

Tale supporto è stato largamente apprezzato dal Cliente, che ha riconosciuto il decisivo contributo di ElsagDatamat alla modernizzazione della struttura e delle attività di ELTA.

Dal punto di vista economico, gli obiettivi principali (Primo Margine e K di Commissa) sono stati quasi integralmente raggiunti, pur avendo dovuto gestire un Progetto che si è prolungato nel tempo ben al di là dei piani iniziali.

Il PM ritiene doveroso citare i principali collaboratori, senza i quali non si sarebbero ottenuti i risultati pianificati: Laura Isola, Francesca Fusconi, Giorgio Garresio, Carlo Priolo, Stefano Spaggiari, Marco Castagnola, Marco Lollo Ghetti, Luca Gandolfo, Mario Galleano.

È altrettanto doveroso, al termine del Progetto, ringraziare il Management dell'Azienda, che ha sempre sostenuto l'impresa, anche nelle situazioni più difficili.

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24

## Comments

1. I got my target: close the project, achieving all the requirements and expectations (Customer and Company)
2. I had a very nice experience: good Country, good people, success
3. I am still in contact with some ELTA and Greek Supplier friends

And

I survived

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25

## The IT Project Management

### Lesson 10 & 11

#### Paolo Filauro

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# A Project Design

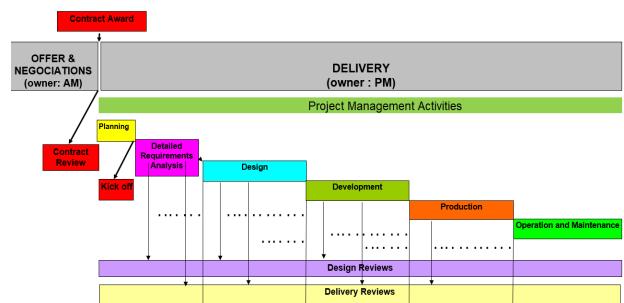
## Exercise

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## The Project Life Cycle



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3

## The Contract/1

Between Company A (the Customer) and Company B (the Supplier) is agreed what follows

### 1. Object of the contract

**Turnkey delivery** of:

- n. 1 Equipment for the automated packaging of bottles, BAP002, including Compressor
- n. 1 Spare parts kit for the warranty period (one year)
- Training and manuals

### 2. Schedule (from Contract signature)

1. Delivery on site: 12 months
2. End of installation: 14 months
3. Acceptance: 15 months
4. End of Warranty: 27 months

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4

## The Contract/2

### 3. Price

€ 1,450, 000 (all included)

### 4. Payments

1. 20% at the order
2. 20% at the delivery on site
3. 20% at the end of installation
4. 40% at the final acceptance

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5

## The SOW/1

### Characteristic of the BAP002

A complete system capable of:

- Feed bottles one by one from a pallet to the packaging equipment
- Move the bottles to the packaging station
- Pack the bottles in cardboard box: the number of bottles per box shall be selected from a fixed and predetermined options list
- Send the box to the palletizing machine (not included in the delivery)

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6

## The SOW/2

### Performances

- Bottles size: 200, 750, 1000 ml
- Speed: the BAP002 shall be capable of handling :
  - 200 ml: 1000 b/h
  - 750 ml: 600 b/h
  - 1000 ml: 400 b/h

### Site

The Customer will make available :

- an area of m 20x50, flat, lighted with 300lux/m<sup>2</sup>
- A main electrical line : 75 KVA, 380 V ± 7% for BAP002 and Compressor

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7

## SOW/3

### Manuals

A complete set of manuals: Technical, Maintenance, Troubleshooting

in electronic format. 3 Copies

### Training

In class and on the job for

Up to 10 operators: one session of 5 hours (one day)

Up to 3 Supervisors: one session of 12 hours (two days)

Up to 4 maintenance technicians: one session of 24 hours (four days)

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8

## LET START: the PBS

- Delivery of n. 1 BAP002 (including Compressor)
- Spare parts kit
- Site set up
- Logistics
- Installation
- Tests
- Manuals
- Training
- Assistance to the Customer people (operators, Supervisors, Technicians)

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9

## The ABS

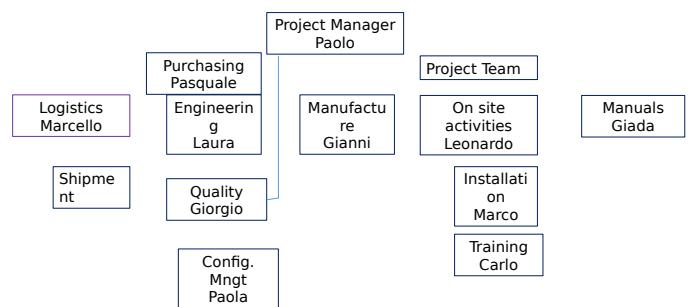
- Detailed Design Spec
- Equipment Customization
- Equipment Manufacture
- Buy third party supply
- Inside integration & Test
- Site design
- Manuals Customization & Production
- Training set up
- Shipment
- Site set up
- Equipment installation
- Commissioning
- Acceptance Test
- Training
- Support to start
- Warranty
- Project Management

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10

## OBS



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11

## The WBS

**Do it together in Excel**

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12

## Costs Table

**Do it together in Excel**

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13

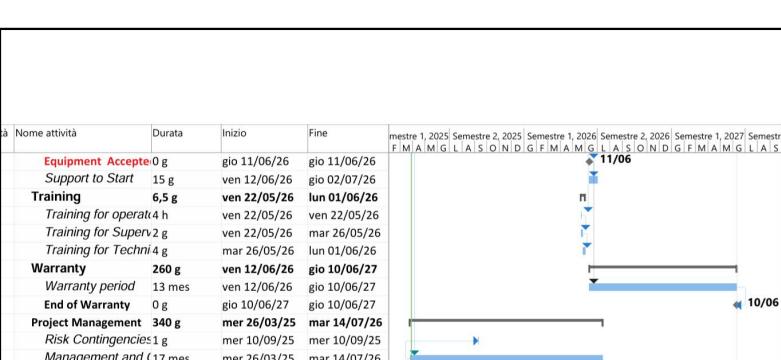
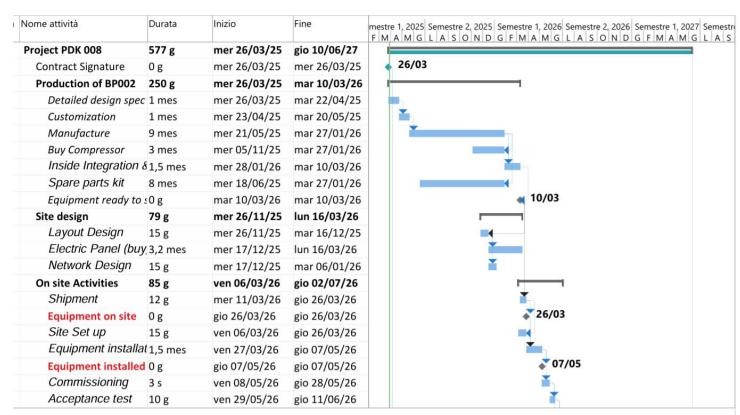
## The GANTT

Let's try to draw a GANTT chart using MS-Project

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14



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16

## The Risk Class (result: B Class)

Difusione territoriale degli impianti/servizi (1= sede in Genova, 2 Italia, 3 EU, 4 Europa, 5 extra europei)	2
Partecipazioni a Consorzi o RTI / subcontractor complessi (Verra' assegnato un valore da 1 a 5 a seconda del numero di attori, del ruolo, della posizione dell'azienda come mandataria, etc.)	0
Complessità (del processo da gestire, del prodotto/sistema da fornire, del servizio da erogare) (1= semplice, 2 medio, 3 complesso, 4 molto complesso)	2
Esperienza sulla Tipologia di progetto (1=>0 fatto con successo piu' volte, 2 fatto piu' volte con qualche critica', 3 fatto piu' volte con diverse criticita', 4 fatto poche volte, 5 prima volta)	2
Valore Economico del progetto (1=> 50 Keuro, 2 tra 50 e 500 Keuro, 3 tra 500 e 2500 Keuro, 4 tra 2500 e 5000 Keuro, 5=>5000 Keuro)	3
Margine del progetto (1=> 50 %, 2 compreso tra 30% e 50%, 3 compreso tra 20% e 30%, 4 compreso tra 5% e 20%, 5=<5%)	3
Rilevanza del progetto per il cliente (1=poco rilevante, 2 rilevante, 3 business critical, 4 life critical)	3
Importanza del cliente (Verra' dato un valore da 1 a 5 a seconda della strategicità del cliente)	3
<b>TOTALE</b>	<b>18</b>

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17

## The PMP

**Using the ToC of Lesson 5, complete (off line) a short Project Management Plan: it will be discussed during the Exam**

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18

## The Kick Off Meeting

**Using the Guide Lines of Lesson 5, invent (off line) a short Presentation for the Kick Off: it will be discussed during the Exam**

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19

## Project Progress Control

**Do it together in Excel**

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20

WBS (Task)	Name	POA	WCWS	ACWP	progr. (PM appr.)	svcr	CPI	SP	CV	SV
WP1-001	WP1-001 Customer A	1085,62	669,12	722,61	66%	0,859959804	1,00050117	-3,3	4,67	
WP1-002	Production of ABS	600,00	479,00	520,00	90%	1,142857143	1,000273116	-1,0	4,47	
WP1-1	Detail Design	11,2	11,2	12	100%	11,2	0,933333333	1	-0,8	0
WP1-2	Construction	11,2	11,2	12	100%	11,2	0,933333333	1	-0,8	0
WP1-3	Manufacture	540	540	540	cost-to-cost	540		1	0	0
WP1-4	Raw Compressor	15	15	15	cost-to-cost	15		1	0	0
WP1-5	Inside Inspection & Test	22,4	22,4	24	60%	13,4	0,666666667	1,12	-0,9	1,12
WP1-6	Delivery to Client	80	80	80	cost-to-cost	80		1	0	0
WP2	Site Design	41,2	8,6	19		7,28	0,606666667	0,846511628	-4,72	-1,32
WP2-1	Laser Design	5,6	5,6	6	100%	5,6	0,933333333	1	-0,4	0
WP2-2	Electric Panel (Rug)	36	6	9		0				0
WP2-3	Relief Design	5,6	5,6	6	30%	1,68	0,28	-1,35	-4,37	-2,72
WP3	Manufacture and Transport	11,2	11,2	12		12				
WP3-1	Manufacture	20	0	0	0%	0				
WP3-2	Transport set up	11,2	0	0	0%	0				
WP4	On Site Activities	82,2	0							
WP4-1	Shipping	15			cost-to-cost	1				
WP4-2	Site Set up	7,2				1				
WP4-3	Equipment installation	21,4				1				
WP4-4	Commissioning	10,0				1				
WP4-5	Acceptance test	7,3				1				
WP4-6	Support to Start	15,7				1				
WP5	Training	11,2	0							
WP5-1	Training for Initiators	2,08				1				
WP5-2	Training for Supervisors	2,08				1				
WP5-3	Training for Purchasers	2,11				1				
WP6	Warranty	100	0							
WP6-1	Warranty period	100	0							
WP7	Project management	100	40	45	33%	44,55				
WP7-1	Management	50	0							
WP7-2	Management and Control	85	40							

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21

## The Report

**Using the ToC of Lesson 7, compose (off line) a short Report at the date of Equipment Ready to ship (March 2026): it will be discussed during the Exam**

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22

## Home work

A part of the exam will be the discussion of a project.

1. Invent a project: it will be related to the production of «something»
2. Produce the WBS, starting from the PBS and the ABS
3. Calculate the costs for each task and the total project budget
4. Determine a possible cost for the Customer, and calculate the margin
5. Draw a schedule (in excel) with the tasks and the milestones
6. Prepare a concise PMP for the project: use the ToC presented in Lesson 5
7. Prepare a concise Kick off Meeting of the project: use the Guide Lines presented in Lesson 5
8. Prepare a concise Report for a chosen, intermediate date of the project schedule: use the ToC presented in Lesson 7

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23

## Conclusions

Setting up and manage a project is a (sometimes) long and complex activity , but it is challenging for a professional Project Manager.

As a suggestion, remember what Albert Einstein once said:

**Everything should be made as simple as possible, but not simpler.**

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**That's all folks, thank you**

24

## IT Project Management Final Lesson

Paolo Filauro

February May 2025

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1

# The Project Management

We will speak about:

- **WHAT** is the Project Management
- **HOW** it can help us
- **WHY** we should use it

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2

# What is a Project (1)

The Guru of the Project Management, Russel. D. Archibald, defines a project as:

"the **systemic management of a complex, single and fixed-term company** aimed at achieving a **clear and predefined objective** through a **continuous process** of differentiated planning and control and interdependent **cost-time-quality constraints**"

And the Project Management Institute, in a more simple way:

"**Project Management is the application of knowledge, skills, tools and techniques** to project activities to meet project requirements"

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3

# Why Project Management (1)

To Manage a Project is a **cost**.

The question is: why have I (the Company) to pay that cost ?

## Because:

The PM activities are required to achieve the project target, with the minimum of resources, the minor possible costs, on time, with the highest quality AND with the Customer's satisfaction

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4

# Why Project Management (2)

And BECAUSE it answers the big, existential questions of a Project Manager:

- **WHAT**
- **WHEN**
- **WITH WHOM and WITH WHAT**
- **HOW MUCH I will pay**
- **HOW MUCH I will earn**

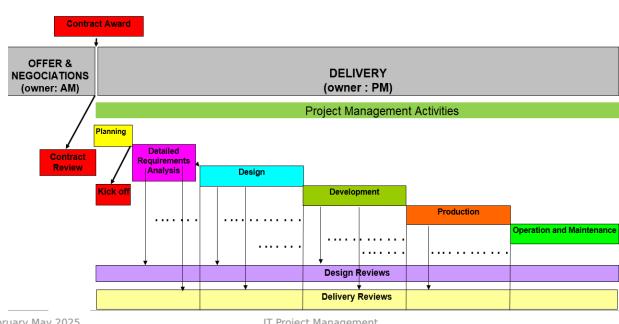
Is it enough ?

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5

# The Project Life Cycle

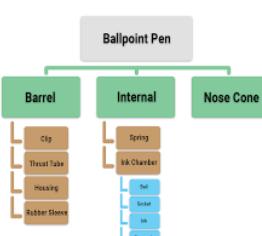


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6

# PBS: a (very simple) example

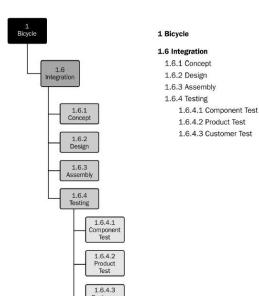


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7

# ABS: an example

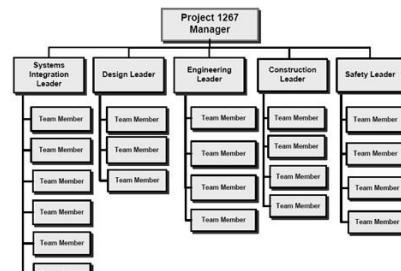


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8

# OBS: an example

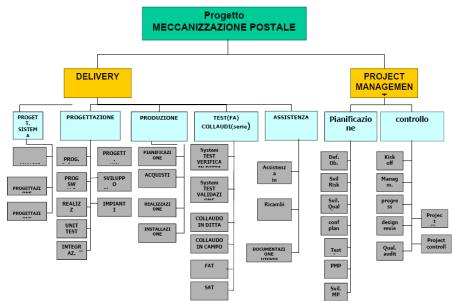


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9

# A real life WBS Example: Postal Mechanization



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10

## The Costs

Generally, the project costs should be estimate during the Proposal cycle

BUT

The Project Manager is now the Owner and the Responsible of the whole Project

THEN

The costs MUST be renegotiated with the internal and the external suppliers before their assignment to the right WP (for future control)

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11

## The time

Each activity included in a WP requires a certain time to be achieved.

The determination of the *HOW LONG it takes* is vital in the general design of the Project: most, if not all, of the project activities are dependent from each other, and the time schedule is one of the most important elements.

The time elongation of each activity MUST be discussed with its Responsible: it is a basic part of each WP, and an important element for the control of the project progress.

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12

## Something more

Before starting the Project detailed planning, two other elements MUST be considered:

The **RISKS** (Risk Analysis): remember Murphys ?!

The **EVA** (Economic Value Added): the project earns or loses money ? What can I do to generate wealth ?

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13

## Risk Analysis/1

We prefer to think about **WHAT** we have to do to accomplish the Project target, and to minimize what should **NOT** happen to make more difficult the target achievement.

### ERROR

We **MUST** think about the **RISKS** that we can (will ?) face during the development of our Project, and put in place everything we can do to minimize, if not eliminate, the adverse situations.

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14

## EVA: Economic Value Added

A Company invests money to run a project: is it profitable ?

*The Economic value added (EVA) is a measure of a project's financial performance based on the residual wealth calculated by deducting its cost of capital from its operating profit, adjusted for taxes on a cash basis. EVA can also be referred to as economic profit, as it attempts to capture the true economic profit of a company.*

Essentially, it is used to measure the value a project generates from funds invested into it. If a project's EVA is negative, it means the project is not generating value from the funds invested into the business. Conversely, a positive EVA shows a project is producing value from the funds invested in it.

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15

## Scheduling

There are many tools used to visualize the time schedule of a project. Two are the most diffused:

- **GANTT Chart**, introduced by Mr. Henry Gantt in 1917, named sometimes as BAR Chart
- **PERT** (Program Evaluation and Review Technique), introduced by Lockheed in 1958

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16

## Communication

One of the main tasks for a Program Manager is:  
**Communicate**

With:

- The stakeholders of the project: The Shareholders (for very large and important projects), the Company's Top Management, the Company's middle Management involved in the project
- The Project Team
- The Responsibles of the activities required to achieve the project scope

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17

## Project Management Plan (PMP)

The **Program Management Plan** (PMP) is an **essential, official document** that details all the policies, procedures, processes, and other organizational rules that the program will follow to achieve the program's outcomes.

The PMP includes both program planning and execution activities and thus acts as a guide for the program. Also, as the PMP has the potential to include a lot of information, the PMP development takes time as the plan is progressively elaborated.

As detailing all such information isn't usually possible in one document, the PMP lists all such documents that are required to help the program manage, execute, and control the program to achieve its objectives.

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18

## The Kick off Meeting

The **Kick Off Meeting** is the **formal start** of a project. It is a **crucial moment** in the Project lifecycle.

The Attendants should be:

- The project **Stakeholder**: the Company management, usually
- The Responsible of the Teams involved
- The main Resources: who will develop the Project
- The Project Management staff

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19

## Manage a Project

Once planned, a Project **MUST be managed** in term of:

- **Activities progress**
- **Costs Analysis**
- **Risks Management**

As a plan is designed to not be abided, we should:

- **Reprogram**

And, as we work in an organization:

- **Report**

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20

## The EVM methodology

The Earned Value Methodology is a technique whose target is to quantify the **costs** and the **efficiency** of the production processes.

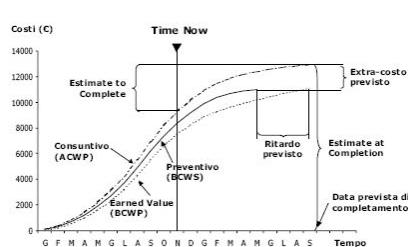
The methodology was introduced more than 100 years ago and used for the first time in project management in 1960 by the US DoD to verify the status of their projects in term of costs and schedule.

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21

## EVM with the S Curve



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22

## Reporting

A **project status report** is a critical part of an effective project communications and management **strategy** to update your project team, sponsors or stakeholders.

The target of reporting is to pass *the right information to the right people*, about the project status, the required actions, the involved responsibilities.

It's a **vital communication tool**, and it can provide a documented *history* of the project, which makes planning for next projects easier.

Remember: **the Report is an official and formal document**

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## The history of a real project: the ELTA Project



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24

## Home work

A part of the exam will be the discussion of a project.

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2. Draw a schedule (in excel) with the tasks and the milestones
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25

# **SHORT REFERENCE TEXT FOR THE ITPM COURSE PART 2**

## **(PROJECT MANAGEMENT FOR IT PROJECTS: INNOVATIVE PROJECTS)**

### **SUMMARY**

0. INTRODUCTION
1. INNOVATION AND METHODOLOGIES
2. AGILE CONCEPTS
3. AGILE METHODOLOGIES OVERVIEW WITHOUT SCRUM
4. SCRUM
5. LEAN
6. DESIGN THINKING
7. VALUE DRIVEN DELIVERY
8. STAKEHOLDERS, TEAMS,ADAPTIVE PLANNING
9. CASE STUDIES
10. EXERCISES
11. CONTINUOUS IMPROVEMENT AND REVIEW

## **0.INTRODUCTION**

The following notes intend to integrate the slides of the second part of the course “PROJECT MANAGEMENT FOR IT PROJECTS-INNOVATIVE PROJECTS” with more detailed information and in any case intended to provide a solid practical basis for professions that concern innovative projects and in particular concerning software

## **1.INNOVATION AND METHODOLOGIES**

**Project Management** is a wide domain of concepts, techniques, tools, used all over the world to define, program, develop project with different nature and targets.

The Project Management methodologies can be defined in two, different but non antithetical ways: predictive and agile.

The **predictive** methodology (also named as prescriptive or waterfall) focuses on planning and analyzing the projected future in-depth even to anticipate the risks. This methodology relies on an early phase analysis and a detailed breakup of features and tasks for the entire development process.

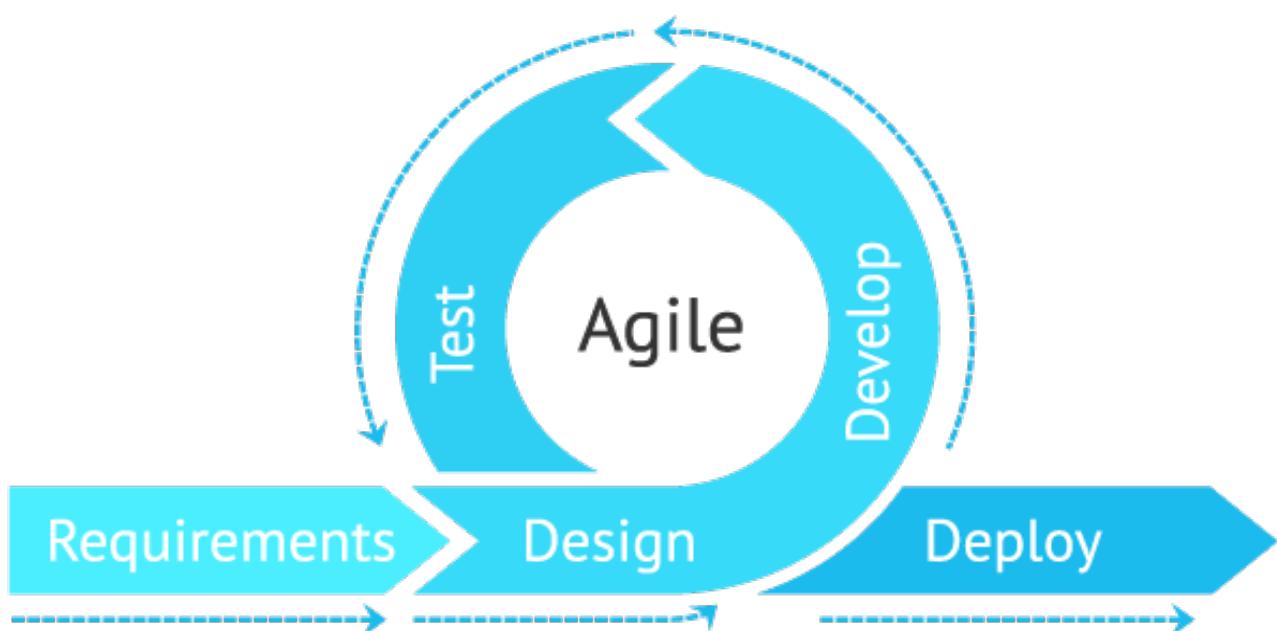
In **agile** methodology, adaptive project management caters to focusing on adapting quickly to changing scope and project reality. As with the predictive model, with this methodology you still plan, schedule, identify key milestones and dependencies. But this model provides way *more flexibility* in the path to the end goal, which accommodates *changing requirements* along the way.

The Agile methodology is popular for projects where clients' demands and requirements change frequently.

There's a wide array of project management frameworks you can use. Some methods though, like waterfall aren't effective for software teams. With priorities and customer needs constantly changing, the Agile methodology breaks projects up into several phases to drive continuous improvement. Agile project management isn't just useful for software project management: all types of teams have been successful with this dynamic methodology. If you're looking to get started with Agile for innovative projects, you've come to the right place.

Agile methodology is a project management framework that breaks projects down into several dynamic phases, commonly known as sprints.

The Agile framework is an iterative methodology. After every sprint, teams reflect and look back to see if there was anything that could be improved so they can adjust their strategy for the next sprint.



Innovative projects need a proper approach today, in an environment disrupted by huge technology advances and clients looking for quick value like:

- analytics
- business intelligence,
- statistics
- cybersecurity
- infrastructure for software implementation: hardware, connections, data centers

- IT migrations to change a software platform and interfaces with other systems,
- Coding for many environments: internet, Office support, motion control...

Different approaches are necessary because innovative projects:

- HAVE NOT A TWIN THAT HAVE PROVED SUCCESSFUL IN THE PAST (cars, appliances, houses...)
- ARE EXPLORATORY, TERM REFERRED TO SOMETHING DONE TO DISCOVER MORE ABOUT SOMETHING (SERENDIPITY PHENOMENON OFTEN OCCURS...)
- ARE OFTEN FEATURED BY HIGH-UNCERTAINTY WORK WITH HIGH RATE OF CHANGE, COMPLEXITY, RISK WITH A NEED TO EXPLORE FEASIBILITY QUICKLY

## **2-AGILE CONCEPTS**

Everyone manages projects, whether they're a certified project manager or not. Often the people managing the work are simply 'winging it', which can result in a struggle to manage multiple projects, meet deadlines, and adapt to changing requirements. Studies have found that companies who use a standard project management methodology have had "fewer than half as many project failures than those that did not have one." With this in mind, anyone who manages work should consider adopting a standard project management method. But with all the PM methods out there, how are you to know which one is best for your work management needs?

In this e-book, we'll take a look at the Agile project management philosophy. We'll give an overview of the top Agile methods, provide the advantages and disadvantages of each, and tell you how you can get started implementing Agile practices to ensure your next project is a success.

Agile project management is based on an incremental, iterative approach. Instead of in-depth planning at the beginning of the project, Agile methodologies are open to changing requirements over time and encourages constant feedback from the end users. The goal of each iteration is to produce a working product. Agile refers to any process that aligns with the concepts of the Agile Manifesto. In 2001, 17 software developers met to discuss lightweight development methods. They published the Manifesto for Agile Software Development, which covered how they found "better ways of developing software by doing it and helping others do it."

The Agile Manifesto lists 12 principles to guide teams on how to execute with agility: Our highest priority is to satisfy the customer through early and continuous delivery of valuable software. Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage. Deliver working software frequently, from a couple of weeks to a couple of months, with preference to the shorter timescale. Business people and developers must work together daily throughout the project. Build projects around motivated individuals. Give them the environment and support they need, and

trust them to get the job done. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation

Working software is the primary measure of progress. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely. Continuous attention to technical excellence and good design enhances agility. Simplicity -- the art of maximizing the amount of work not done -- is essential. The best architectures, requirements, and designs emerge from selforganizing teams. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

## **Agile development cycle**

The phases in the Agile development cycle may not happen in succession; they are flexible and always evolving, with many happening in parallel. Planning: Once an idea is deemed viable, the project team comes together to identify features, prioritize each feature, and assign them to an iteration. Requirements analysis: Key stakeholders and users meet to identify business requirements that are quantifiable, relevant, and detailed. Design: The design is prepared from the requirements identified and the team considers what the product or solution will look like, deciding on a test strategy or plan to proceed. Implementation, coding or development: Coding or developing features, and scheduling iterations for deployment. Testing: Test the code against the requirements to make sure the product is actually solving customer needs. This phase includes unit testing, integration testing, system testing, and acceptance testing. Deployment: Deliver the product to customers. Once customers start using the product, they may run into new problems that the project team will need to address in future iterations

## **Advantages of Agile**

Agile evolved from different development approaches in the 1990s and is a response to some project managers' dislike of the rigid, linear Waterfall methodology. It focuses on flexibility, continuous improvement, and speed. Here are some of the top advantages of Agile:

- Change is embraced: With shorter planning cycles, there's always opportunity to refine and reprioritize the backlog to accommodate changes throughout the project.
- End-goal can be unknown: Agile is beneficial for projects where the end-goal is not clearly defined. As the project progresses, the goals will become evident and the team can adapt.
- Faster, high-quality delivery: Breaking down the project into iterations allows the team to focus on high-quality development, testing, and collaboration. Conducting testing during each iteration means that bugs get identified and solved more quickly.
- Strong team interaction: Agile embraces frequent communication and face-toface interactions.
- Customers are heard: Customers have many opportunities to see the work being delivered, share their input, and have an impact on the end product.
- Continuous improvement: Feedback is encouraged from users and team members throughout the project, so lessons learned are used to improve future iterations

## **Disadvantages of Agile**

While flexibility in Agile is usually a positive, it also comes with some trade-offs. It can be hard to establish a solid delivery date, documentation can be neglected, or the final product can be very different than originally intended. Here are some of the disadvantages of Agile: Planning can be less concrete: Because project managers are often reprioritizing tasks, it's possible some items scheduled for delivery may not be complete in time. And, additional sprints may be added at any time in the project, adding to the overall timeline. Team must be knowledgeable: Agile teams are usually small, so team members must be highly skilled in a variety of areas and understand Agile methodology. Time commitment from developers: Active involvement and collaboration is required throughout the Agile process, which is more time consuming than a traditional approach. Documentation can be neglected: Agile prefers working deliverables over comprehensive documentation. While documentation on its own does not lead to success, teams should find the right balance between documentation and discussion

## **3-AGILE METHODOLOGIES OVERVIEW WITHOUT SCRUM**

Extreme Programming (XP): This type of software development is intended to improve quality and responsiveness to evolving customer requirements. Feature-driven development (FDD): There are five basic activities in FDD: develop overall model, build feature list, plan by feature, design by feature, and build by feature. Adaptive system development (ASD): ASD represents the idea that projects should always be in a state of continuous adaptation, and has a cycle of three repeating series: speculate, collaborate, and learn. Dynamic Systems Development Method (DSDM): DSDM addresses the common failures of IT projects, like going over budget, missing deadlines, and lack of user involvement. The eight principles of DSDM are: focus on the business need, deliver on time, collaborate, never compromise quality, build incrementally from firm foundations, develop iteratively, communicate continuously and clearly, and demonstrate control. Lean Software Development (LSD): LSD can be characterized by seven principles: eliminate waste, amplify learning, decide as late as possible, deliver as fast as possible, empower the team, build integrity in, and see the whole. Crystal Clear: This methodology can be used with teams of six to eight developers and it focuses on the people, not processes or artifacts. Crystal Clear requires the following: frequent delivery of usable code to users, reflective improvement, and osmotic communication preferably by being co-located.

## **4-SCRUM**

### **SCRUM is the most common agile methodology.**

The process is followed by an interdisciplinary team working on a project continuously passing the ball around and acting as one entity.

The term SCRUM is in fact borrowed from rugby and indicates the scrum as a metaphor for the team of developers who proceed synergistically towards the goal. The image of players united in tackling the scrum to contest the ball gives a good idea of the approach which involves the use of teams of small cross-functional units working towards a common goal through multiple overlapping phases.

Usually, Scrum is adopted in **software projects** for iterative development particularly useful when writing code, testing it and improving it even if it does not originate from this area. In fact, its Japanese inventors were inspired by the automotive and photocopier industries.

To be precise, Scrum is a management system that suggests the best procedures that can be linked to a project in order to be able to adopt them. The **principles** of Scrum are:

1. Iterative development
2. Collaboration
3. Activities with a certain duration
4. Priority management based on value
5. Empirical process control
6. -Self-organization

The structure is simple, based on **3 main roles and 5 phases**, very similar to those of traditional Project Management (prescriptive or waterfall):

1. initiation,
2. planning and estimating,
3. implementation,
4. review,
5. retrospective and release.

The "heart" is the sprint, a kind of mini-project with a fixed duration and deadline. However, the implementation of Scrum is successful when accompanied by an agility-oriented cultural revolution in which hierarchies are replaced by collaboration and creativity.

It is also interesting to understand the **roles**:

1. the project manager is replaced by a highly collaborative team
2. the Scrum master is a kind of guardian of the method
3. the product owner takes into account the work done and to be done as expected.

The project manager of the future will increasingly be a **business owner**, a role that implies a growing **strategic** function and therefore halfway between prescriptive and agile

#### **4.1 EFFICIENCY OF SCRUM**

As complexity increases central control shows some gaps and the right way is to change to a new system with independent agents according to proper rules.

It is difficult to plan when customers make requests at any time. The more complex the system, the more likely it is that central control systems will break down. So companies decentralize and governments try to deregulate

Scrum travels this trampled approach by moving control from a central authority to individual teams doing the work.

The more complex the project, the more necessary it becomes the delegation to individual people who are closer to the work.

Scrum works also because it shortens a lot the feedback loop between the customer and the developer, between the wish list and its implementations, between investment and return on investment

When there is a simple system it is also quite simple to know in advance what to do but when there is a market economy that changes all the time and a technology that won't stand still the problem solving correct approach is the tried-and-true approach.

In practice all the process-improvement programs use something of the FACT-BASED-DECISION-MAKING cycle: To study a problem, try with a solution, check the results, adopt proven improvements.

Scrum forces us to test and integrate our experiments and pushes us to release them to production in order to have a full learning cycle in about 30 days.

## 4.2 SCRUM GENERAL FEATURES

Scrum comes from rugby, meaning melee, a shooting phase of the game when the ball is contended between 2 groups of players pushing each other. Currently more than 50% of companies which adopt agile, use Scrum

Scrum is an [agile project management](#) framework that helps teams structure and manage their work through a set of values, principles, and practices. Much like a rugby team (where it gets its name) training for the big game, scrum encourages teams to learn through experiences, self-organize while working on a problem, and reflect on their wins and losses to continuously improve.

While the scrum I'm talking about is most frequently used by software development teams, its principles and lessons can be applied to all kinds of teamwork. This is one of the reasons scrum is so popular. Often thought of as an agile project management framework, scrum describes a set of meetings, tools, and roles that work in concert to help teams structure and manage their work.

## 4.3- SPRINTS

A sprint is a short, time-boxed period when a scrum team works to complete a set amount of work. Sprints are at the very heart of scrum and agile methodologies, and getting sprints right will help your agile team ship better software with fewer headaches.

"With scrum, a product is built in a series of iterations called sprints that break down big, complex projects into bite-sized pieces," said Megan Cook, Head of Product for Jira at Atlassian.

Many associate scrum sprints with agile software development, so much so that scrum and agile are often thought to be the same thing. They're not. [Agile](#) is a set of principles and [scrum](#) is a framework for getting s#it done.

The many similarities between agile values and scrum processes lead to a fair association. Sprints help teams follow the agile principle of "delivering working software frequently," as well as live the agile value of "responding to change over following a plan." The scrum values of transparency, inspection, and adaptation are complementary to agile and central to the concept of sprints.

The scrum folks really did think of everything. In order to plan your upcoming sprint, you use the sprint planning meeting! [Sprint planning](#) is a collaborative event where the team answers two basic questions: What work can get done in this sprint and how will the chosen work get done?

Choosing the right work items for a sprint is a collaborative effort between the product owner, scrum master, and development team. The [product owner](#) discusses the objective that the sprint should achieve and the [product backlog](#) items that, upon completion, would achieve the sprint goal.

The team then creates a plan for how they will build the backlog items and get them "Done" before the end of the sprint. The work items chosen and the plan for how to get them done is called the sprint backlog. By the end of sprint planning the team is ready to start work on the sprint backlog, taking items from the backlog, to "In-progress," and "Done."

During a sprint, the team checks in during the daily scrum, or [standup](#), about how the work is progressing. The goal of this meeting is to surface any blockers and challenges that would impact the teams ability to deliver the sprint goal. After a sprint, the team demonstrates what they've completed during the [sprint review](#). This is your team'

opportunity to showcase their work to stakeholders and teammates before it hits production.

Round out your sprint cycle with my favorite meeting, the [sprint retrospective](#).

This is your teams opportunity to identify areas of improvement for the next sprint. With that, you're ready to start your next sprint cycle. Onward!

Do's and Don'ts

Do:

- Make sure the team sets and understands the sprint goal and how success will be measured. This is the key to keeping everyone aligned and moving forward toward a common destination.
- Do ensure you have a well-groomed backlog with your priorities and dependencies in order. This can be a big challenge that could derail the process if it's not properly managed.
- Ensure you have a good understanding of velocity, and that it reflects things like leave and team meetings.
- Do use the sprint planning meeting to flesh out intimate details of the work that needs to get done. Encourage team members to sketch out tasks for all stories, bugs, and tasks that come into the sprint.
- Leave out work where you won't be able to get the dependencies done, like work from another team, designs, and legal sign-off.

- Finally, once a decision or plan is made, make sure someone captures that information in your project management or collaboration tool, like your Jira tickets. That way, both the decision and the rationale are easy for everyone to see later.

While you're working on being a scrum all-star with these "do's," watch out for a few red flags too:

Don't:

- Don't pull in too many stories, overestimate velocity, or pull in tasks that can't be completed in the sprint. You don't want to set yourself or your team up for failure.
- Don't forget about quality or technical debt. Make sure to budget time for QA and non-feature work, like bugs and engineering health.
- Don't let the team have a fuzzy view of what's in the sprint. Nail it down, and don't focus so much on moving *fast* that you forget to make sure everyone's moving in *the same direction*.
- Also, don't take on a large amount of unknown or high-risk work. Break down stories that are large or have high uncertainty, and don't be afraid to leave some of that work for the next sprint.
- If you hear concerns from the team, whether it's about velocity, low-certainty work, or work they think is bigger than what they estimated, don't ignore it. Address the issue, and recalibrate when necessary.

### Optimize your sprints with automation

Once you have mastered how sprints work, you can optimize your processes using automation. Here are three of the most common automation rules used for sprints in Jira.

1. Send a weekly Slack message with all issues still open in the sprint.
2. When a sprint finishes, then assign outstanding issues to the next sprint.
3. When an issue moves to 'In Progress' and the sprint is empty, then move the issue to the next active sprint

Sprints are so well known (and so effective!) that they're often seen as the first step on the path towards greater agility. As we've learned, mastering sprints requires a mastery of a handful of scrum and agile concepts that build upon each other. Please use [the rest of our articles on scrum](#) to round out your knowledge and inch ever closer towards scrum bliss.

You can easily get started on the right foot by planning your sprint (and incorporating do's and don'ts) with our [scrum template](#), which includes everything you need to plan, track and manage work across sprints. Also, [learn how to use sprints in Jira](#).

## 5. LEAN

Lean agile is an agile methodology that, in basic terms, is quite simple: improve efficiency by eliminating waste. Unlike traditional, waterfall project management, which dictates a set plan laid out by a project manager, lean agile strives to reduce all tasks and activities that don't provide real value.

### Five Lean Principles

Waste is expensive! It's paying someone not do any real work, paying for supplies you don't need, or paying for team members to sort out a preventable issue. Lean agile aims to eliminate wasteful resources and tasks for improved efficiency and reduced costs — while never sacrificing quality. In fact, lean agile prioritizes bringing value to the customer with every decision that's made.

Lean agile is a development method that helps teams identify waste and refine processes. It's a guiding mindset that facilitates efficiency, effectiveness, and continuous improvement.

Consider this: You probably work a lot better when your desk isn't completely covered with a mess of things you don't need. When you eliminate distractions and waste, it establishes an organized workspace and workflow. This helps you focus on what's most important, ensuring you work efficiently and effectively. Here, you'll learn more about the development of lean, the benefits of lean agile, and the five core principles of lean.

### The development of lean agile

Lean agile, or lean software development, originates from the principles of [lean manufacturing](#). The concept was brought into manufacturing to improve profits by reducing costs instead of solely relying on increased sales. If a company can eliminate waste and become more efficient, it can save money, thereby increasing overall profits.

Lean agile is an agile methodology that, in basic terms, is quite simple: improve efficiency by eliminating waste. Unlike traditional, waterfall project management, which dictates a set plan laid out by a project manager, lean agile strives to reduce all tasks and activities that don't provide real value. This helps ensure everyone involved in a project or product development can work at optimal efficiency.

If you're looking to dive into the history of lean agile, [Lean Enterprise Institute Inc.](#), founded in 1997 by James P. Womack, PhD, is a leading resource for lean methodology. It aims to help people and teams work better through lean thinking and practices.

Lean practices are popular because they can be applied to other agile approaches and [software development methods](#). Lean agile provides a clear application for [scaling agile](#), which is often difficult for large or growing organizations.

### The benefits of lean agile

In case you're not on board with lean agile yet, let's review its main benefits.

#### Waste less time

Time is wasted when processes don't run smoothly. In lean manufacturing, it's important for goods and services to be delivered quickly and effectively. No

one's time should be wasted on the job, and companies should aim for shorter lead times without sacrificing quality.

Wasting time in any industry is expensive, but it's particularly important to pay attention when working in agile software development. Even a small bottleneck or broken process can completely throw off a workflow or product deadline.

Lean agile helps development teams manage time effectively to ensure everyone is utilized, no one's time is wasted, and roadblocks are anticipated in advance.

#### Reduce costs

When businesses eliminate waste, they save money. In its original form, lean manufacturing ensured companies had the right amount of materials, employees, and working hours at any given time. Overproduction, overhiring, or simply having too many materials to store are expensive wastes that can be eliminated through better management of systems and processes.

Any business, no matter the industry, will save money with improved efficiency. Lean agile ensures that waste is continually eliminated and agile teams continue to fine-tune processes for optimal efficiency.

#### Improve work quality

With lean agile, it's not only about efficiency — it's about maintaining efficient processes while bringing a quality product to customers and stakeholders.

When businesses intentionally improve processes, they remain competitive.

Lean principles consider the customer value of any action or decision to ensure needs are always met or exceeded.

#### The five principles of lean agile

There are five core principles for implementing lean methodology:

1. Value
2. Value stream
3. Flow
4. Pull
5. Perfection

These principles describe a five-step process that guides the implementation of lean techniques for manufacturing, software development teams, and other agile practicing industries.

##### 1. Identify value

The first step requires you to step into the shoes of the customer. Value is what the customer needs and wants from a specific project or product.

Consider from the customers' point of view: What are their expectations? What are they willing to pay for? How do they want their needs met?

Sometimes, customers may be unable to define exactly what they're looking for — especially if it's a new product or technology they're unfamiliar with.

In any case, the project cannot move forward without clearly identifying what it will take to provide customer satisfaction. You'll need to identify the end goal (value) customers are hoping to find with the product or service.

##### 2. Map the value stream

Next, the team visually maps each of the steps and processes it will take to bring the product from inception to delivery. By making each step visible and always keeping the value top-of-mind, it's easier to see which steps don't

directly contribute to continuous delivery. Once wasteful steps are found, the team finds ways to eliminate those steps or reduce them as much as possible. Getting rid of waste ensures your company doesn't unnecessarily spend money on steps and processes that don't add value. And — most importantly — the customer gets exactly what they're looking for.

### 3. Create flow

Once the waste is eliminated from the value stream, the next step is ensuring the remaining processes work as effectively and efficiently as possible, which means no delays, disruptions, or bottlenecks. It's important for the steps that create value to work in tight sequences to ensure the product flows smoothly toward the customer.

In order to achieve this kind of agile transformation, lean businesses must train their employees to be adaptive and multi-skilled, create cross-functional teams, break down and reconfigure steps in the production, and balance employee workloads.

### 4. Establish a pull system

With enhanced flow, your team can deliver products and services faster. A pull system enables "just-in-time" manufacturing and delivery, limiting inventory and work in progress (WIP) items by only producing enough to meet customer demand.

By establishing a pull system, you create products and services as needed as opposed to creating them in advance, which leads to a growing inventory or list of tasks that need to be stored and managed — draining your bottom line.

### 5. Seek perfection

By completing steps 1-4, waste is eliminated — for now. However, the work is never done. There is always a process that could be improved, and there will always be steps in project and product development that waste time and money or don't deliver value. That's why the fifth step of seeking perfection is key.

Lean takes time to implement, and going through the process once is not enough. Build a continuous improvement mindset into your company culture, and never settle for the same old.

### Lean agile made easy

Lean prioritizes the elimination of waste to improve efficiency. This helps teams continually improve their processes while emphasizing the tasks that bring the most value to customers.

If you're looking to learn about how agile principles work with other development approaches, we recently covered eight different software development methodologies, including rapid application development, extreme programming (XP), and other agile frameworks.

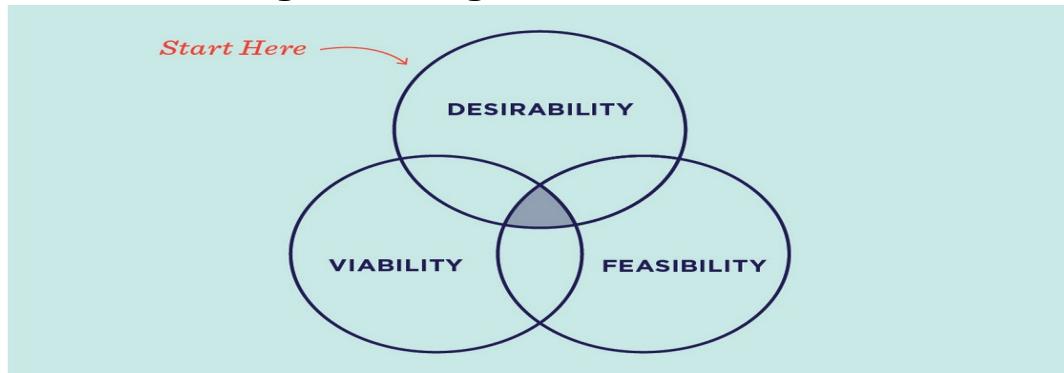
**Easy Agile is dedicated to helping teams improve their processes and agile methods.**

## 6. DESIGN THINKING

Design thinking encourages organizations to focus on the people leading to better products, services, and processes. When you sit down to create a

solution for a business need, the first question should always be **what's the human need behind it?**

## How Does Design Thinking Work?



- **Desirability:** What makes sense to people and for people?
- **Feasibility:** What is technically possible within the foreseeable future
- **Viability:** What is likely to become part of a sustainable business model?

The design thinking process starts with taking action and understanding the right questions. It's about *embracing simple mindset shifts* and *tackling problems from a new direction*.

*Design thinking can help your team or organization:*

- Understand the unmet needs of the people you're creating for (customers, clients, students, users, etc...).
- Reduce the risk associated with launching new ideas, products, and services.
- Generate solutions that are revolutionary, not just incremental.
- Learn and iterate faster.
- Collaborate better and tap into the creative potential of individuals and teams.

## Design Thinking Applications:

Design thinking is applicable no matter your role or industry. Whether you work in business, government, education, or nonprofit, design thinking can help you develop innovative solutions based on the needs of your customers. See case studies showcasing the impact of design thinking across a variety of industries and practices.

## Phases of Design Thinking

We teach the phases of design thinking as linear steps, but in practice the process is not always linear. Some of these steps may happen several times, and you may even jump back and forth between them. Moving through the phases of design thinking can take you from a blank slate to a new, innovative solution.

**Frame a Question**—Identify a driving question that inspires others to search for creative solutions.

**Gather Inspiration**—Inspire new thinking by discovering what people really need.

**Generate Ideas**—Push past obvious solutions to get to breakthrough ideas.

**Make Ideas Tangible**—Build rough prototypes to learn how to make ideas better.

**Test to Learn**—Refine ideas by gathering feedback and experimenting forward.

**Share the Story**—Craft a human story to inspire others toward action.

When done right, design thinking will help you understand the mindsets and needs of the people you're creating for, surface opportunities based on these needs, and lead you to innovative new solutions starting with quick, low-fidelity experiments that provide learning and gradually increase in fidelity.

#### **4 Ways to Get Started with Design Thinking**

##### *1. Gather Insights by Practicing Empathy, Observation, and Interviewing*

Getting to know your customers is the first step toward creating products and services they want and need. Don't assume you know what someone thinks or feels. Gathering information about your target consumer is a critical piece of the design thinking approach. Build your interview skills with these tips.

##### *2. Build Scrappy Prototypes to Learn About Unmet Needs*

You don't need lots of time or resources to prototype. Begin with pen and paper or other accessible resources, like a slide deck, to mock up ideas and get feedback that will help you better understand the needs of your customers before investing in production.

##### *3. Turn Problems into Questions*

When presented with a problem, resist the urge to find a solution right away. Shift your mindset to instead ask a question that might get you closer to the root of the challenge or support an incremental improvement.

Take the example of an IDEO team who was working with a company struggling with retention. Instead of focusing on improving retention rates, they asked, *How can we make a better employee experience?* By refocusing on the real human needs, they uncovered insights that were better able to drive toward a solution.

##### *4. Use Research to Understand the Past, Present, and Future*

IDEO typically uses lots of different research techniques to generate insights around the needs of people including, but not limited to, observation, interviewing, immersive empathy, and exploring extreme users.

Generally, the type of research you can do falls into three buckets:

- **Generative Research:** Used to identify new opportunities and explore needs.
- **Evaluative Research:** Used to gather feedback on experiments and help you iterate forward.
- **Validating Research:** Traditional market research intended to help you understand what is currently happening.

Generative and evaluative research are focused on the future and new ideas, while validating research is centered around what is occurring in the present.

Balance your research approach to focus on what's happening now and what could be in the future.

## 7. VALUE DRIVEN DELIVERY

The goal of agile is the asap delivery of the value through continuous, periodical, incremental releases

Value must absolutely framed within priority and the delivered value must be used as a principle of prioritization of the backlog

Marketing is the discipline to achieve the company goals: **launch successful products and services SO** the goal of marketing is the creation of **value** for customers and for the company

One of the best definition of value: **utility or importance in comparison with something else.**

1. **2 main meanings of value:** value for the customer=sacrifice difference between what he receives and what he gives in counterpart
2. exchange value=selling price  
    Unavoidable points of all the companies:
  - **VISION:** what you want to accomplish.
  - **MISSION:** how you will achieve your vision.

### **• STRATEGY: way of using the mission to achieve the vision.**

IN THE MISSION OF EVERY COMPANY, FROM THE SMALLEST TO THE BIGGEST ONES, THERE SHOULD BE THE

- PLANNING
- CREATING
- EXECUTING
- COMMUNICATING
- DELIVERING

VALUE

CONCEPTS THAT GUIDE BUSINESS.

BUSINESS VALUES CAN HELP

- MAKE DECISIONS,
- FOSTER A CULTURE OF TEAMWORK
- CREATE A POSITIVE WORKING ENVIRONMENT.

BUSINESS MODEL: COMPANY'S PLAN FOR MAKING PROFIT.

IT IDENTIFIES

- THE PRODUCTS OR SERVICES TO SELL
- TARGET MARKET
- ANY ANTICIPATED EXPENSES.

DELIVERY VALUE IS SIMPLY THE REASON TO DO PROJECTS

- **VALUE DRIVEN DELIVERY: Within Agile approach the effect is to provide a non constant differential value which grows progressively up the achievement of a peak.**
- **In opposition in the traditional approach the differential value is totally provided at the end of the project**

**VALUE DRIVEN DELIVERY PRACTICES**

1. ASSESSING VALUE
2. PRIORITIZING VALUE
3. DELIVERING INCREMENTALLY
4. AGILE-CONTRACTING
5. VALIDATING VALUE

DELIVER VALUE EARLY (EAT YOUR DESSERT FIRST!)

WHY?

1. LIFE IS SHORT...
2. STAKEHOLDERS PLAY A HUGE ROLE IN SUCCESS

**«decide to prioritize value-adding activities and risk-reducing efforts»**  
**«remember that wasteful activities reduce value (overheads...)»**

## **8-STAKEHOLDERS, TEAMS, ADAPTIVE PLANNING**

Adaptive planning is a flexible project management approach that focuses on responding to change and uncertainty while aligning with stakeholder needs. It involves engaging stakeholders early and often, prioritizing value delivery, and making iterative adjustments to the plan as needed. This approach contrasts with traditional, more rigid planning methods.

Elaboration:

- **Stakeholder Engagement:**

Adaptive planning emphasizes the importance of involving all stakeholders, including customers, users, and other relevant parties, in the planning process. This ensures that the project goals and strategies are aligned with their needs and expectations.

- **Team Collaboration:**

Teams are encouraged to collaborate closely and communicate frequently with stakeholders to address changing requirements and feedback. This iterative process helps ensure that the project remains focused on delivering value.

- **Iterative Planning:**

Adaptive planning involves continuous iteration, regular reevaluation, and as-needed plan modifications. This allows teams to respond effectively to changing circumstances and unexpected challenges.

- **Prioritizing Value Delivery:**

Adaptive planning focuses on delivering value to customers incrementally and frequently. This approach helps to build stronger relationships and ensure that the project remains aligned with evolving business needs.

- **Flexibility and Responsiveness:**

By embracing a flexible and adaptive approach, teams can be more responsive to market changes and stakeholder feedback. This helps them to maintain a competitive edge and achieve greater success.

## 9. CASE STUDIES

### THE WORLD IS MORE AND MORE “PROJECTIZED”.

#### PROJECT MANAGEMENT WITH ITS BASIC CULTURE BECOMES A FORMIDABLE ASSET

- **1969: after months of conversations between Jim Snyder and Gordon Davis, a decision was taken to form a new organization to provide a means for project managers to associate, share information and discuss issues**
- **A meeting in Georgia sealed the birth of the Project Management Institute**

Shortly thereafter, articles of incorporation were signed in Pennsylvania, by [the founders of PMI](#): James Snyder, Eric Jenett, Gordon Davis, E.A. "Ned" Engman and Susan C. Gallagher

4 periods :

- **Before 1958→GANTT in 1910**
- **1958 to 1979→CPM and PERT**
- **1980 to 1994→COMPUTER ANALYSIS**
- **1995 to present→AGILE**
- **The modern age is defined by the Internet, as true in project management as anywhere.**
- **The access and connectivity it allows, have transformed methods for organizing and performing work.**
- **In 2001 the Agile Manifesto was published, outlining a new philosophical approach and new techniques**
- **Concepts from project management have begun to shape business strategy overall, benefiting strategic management.**

The most lasting legacy of Apollo was an improved understanding of how:

1. **to plan,**
2. **to coordinate**
3. **to monitor the myriad activities that were the Apollo building blocks**

- 4. 2504BC: The pyramid of Giza-Egypt;230 meters long,137 meters high, 3 million stone blocks,30,000 working people. Each block weighed between up to 8 tons**
- 5. 475BC:The Great Wall of China to protect Chinese cities from the Huns. Today: a wall of 8,851 km. The walls are 7.8 meters high and upto 5 meters wide.**
- 6. The Brooklyn Bridge (1883) - It was the first bridge supported by steel cables, the longest in the world, 1054 m. To date, about 144,000 vehicles cross the bridge every day**
- 7. 1914 The Panama Canal revolutionized shipping by connecting the Atlantic to the Pacific. Currently, more than 15,000 boats cross the canal every year.**
- 8. 1937 The Golden Gate Bridge to connect San Francisco to the bay. A total of 130000 km of cables. The 2 km of bridge have to face heavy wind and risk of earthquakes.**
- 9. 1994 Channel Tunnel to Great Britain without a boat. A length of over 50 km,a depth of 76 meters.13,000 people (engineers, technicians,workers) took 6 years to build.**
- 10. Dubai Tower,828 meters high, the tallest building in the world since 2010. 163 floors for over 300000 m2**

2020 SAN GIORGIO BRIDGE (FORMER MORANDI)

#### **TRUE OR FALSE?**

- 1. NASA and the Apollo programs contributed to the advancement of project management**
- 2. MOOG provided Comau with an innovative way to cook pasta**
- 3. 3 greatest players in industrial robotics are Fanuc, ABB, Comau**
- 4. The Great Wall of China used agile to be developed**

## **10. EXERCISES**

## **11. CONTINUOUS IMPROVEMENT**

As technology and remote work create wider gaps in interpersonal communication, you will need to work even harder on the relationship with your project stakeholders. Soft skills will become the glue that holds a project together.

Soft skills like communication, motivation and delegation help project managers build a strong, collaborative team that works effectively toward a common goal. You will need to clearly communicate plans, updates and roadblocks to everyone involved, fostering trust and avoiding misunderstandings.

Conflicts will still occur, so skills such as active listening, empathy and negotiation are needed to keep the project moving forward—while problem-solving and critical thinking allow you to adjust to unexpected situations and find solutions.

Adaption approach: foster open and transparent communication channels within your project teams and with stakeholders to ensure alignment and collaboration.

# IT PROJECT MANAGEMENT-PART 2/2

## 2nd LESSON

APRIL 9th 2025

AGILE

Mario Salano

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

S

1

## 2nd LESSON: AGILE GOALS&PRINCIPLES SECOND PART FILE ROUGE

1. INNOVATION AND METHODOLOGIES
2. AGILE GOALS&PRINCIPLES
3. AGILE METHODOLOGIES OVERVIEW WITHOUT SCRUM
4. SCRUM
5. LEAN
6. DESIGN THINKING
7. VALUE DRIVEN DELIVERY
8. STAKEHOLDERS, TEAMS, ADAPTIVE PLANNING
9. CASE STUDIES
10. EXERCISES
11. CONTINUOUS IMPROVEMENT
12. CONCLUSION AND REVIEW

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

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2

## REMINDER

### Project Definition (PMI)

**ANY TEMPORARY ENDEAVOR  
WITH A DEFINITE BEGINNING AND  
END UNDERTAKEN TO CREATE A UNIQUE  
PRODUCT, SERVICE OR RESULT WITHIN  
DEFINED CONSTRAINTS**

IT PM PART 2: PROPER SOFTWARE  
METHODOLOGIES

3

## 2nd LESSON: AGILE GOALS and PRINCIPLES

In this lesson we focus on some **key concepts** for the rest of the course

- **agile mindset**,
- its fundamental **values** and **principles**,
- **methodologies**,
- **leadership**.

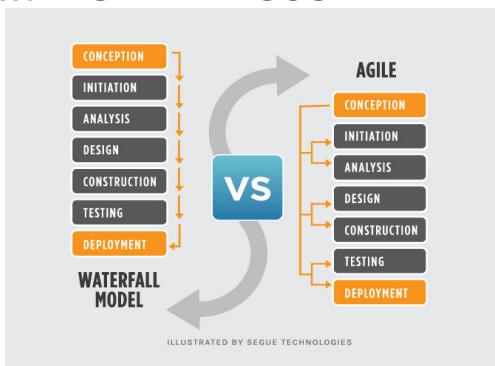
Exploration of **agile project leadership** and its difference from **traditional project management** will be outlined.

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

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4

## 2nd LESSON: AGILE VERSUS WATERFALL



5

## REFERENCE TABLE: TRADITIONAL/INNOVATIVE PROJECTS

TRADITIONAL PROJECTS	INNOVATIVE PM	EXAMPLE
1-Scope fixity	1-Scope flexibility	1-Scope flexibility
Project scope defined at the beginning	Scope is adapted during the life cycle	Spotify adaptations according to users' feedback
2-Methodologies	2-Methodologies	2-Methodologies
Waterfall: each phase completed before next	Feedbacks&iterative development	WINDOWS DEVELOPMENT
3.Techniques	3.Techniques	3.Techniques
MSProject+ Excel	Proper tools for real time management	Atlassian changed digital management
4.Communication	4.Communication	4.Communication
Formal and gerarchical	Quick decision process	Increment of smart and collaborative working
5.Risk management	5.Risk management	5.Risk management
Plan at the beginning	Cont. risk evaluation	Startups
6-Releases	6-Releases	6-Releases
One single delivery	Incremental	Amazon and Google
7-Roles in the team	7-Roles in the team	7-Roles in the team
Clear responsibilities	Interfunctionality	Google: people for different projects

6

## 2nd LESSON: AGILE VERSUS WATERFALL

### Both are usable, mature methodologies.

**Waterfall** is a linear approach; the sequence of events is from gathering requirements to deliver a product and each stage ends before the next one begins

**Agile** is an iterative, team-based approach; the sequence of events emphasizes the rapid delivery of an application in complete functional components.

It is also common to transition into a **hybrid Agile** approach that combines aspect of both Agile and Waterfall

### WHAT TO USE? LET'S GO ON!

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

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## 2nd LESSON: AGILE GOALS and PRINCIPLES WHERE IS WORK MOVING?

Humans:hunters➡farmers➡craftsmen➡booming factories

### WHERE ARE WE TODAY?

IT PM PART 2: PROPER SOFTWARE  
METHODOLOGIES

8

## 2nd LESSON: AGILE GOALS and PRINCIPLES WHERE IS WORK MOVING?

TODAY WE ARE IN A **VUCA** WORLD

**VOLATILE & CHANGING REQUIREMENTS**

**UNCERTAIN & NOT WELL DEFINED REQUIREMENTS**

**COMPLEX & DEMATERIALIZATION REQUIREMENTS**

**AMBIGUOUS & UNCLEAR REQUIREMENTS**

## 2nd LESSON: AGILE GOALS and PRINCIPLES WHERE IS VUCA WORLD MOVING?

**VUCA WORLD CALLS FOR:**

- 1. KNOWLEDGE WORK**
- 2. INFORMATION TECHNOLOGY DOMAIN**

## 2nd LESSON: AGILE GOALS&PRINCIPLES WHY ARE NEW PM METHODOLOGIES NECESSARY?

**Because different types of projects require different METHODS**

## 2nd LESSON: AGILE GOALS&PRINCIPLES AND...WHY AGILE?

Because some projects, mainly **knowledge projects**, in a **VUCA environment** call for iterations to deliver a project throughout its **life cycle**.

Iterative life cycles are composed of several **incremental** steps towards the completion of a project.

Iterative approaches are frequently used in **software** projects as the benefit of iteration is the ongoing adjustment

An iterative approach aims to release benefits throughout the process rather than only at the end.

## 2nd LESSON :AGILE GOALS and PRINCIPLES: WHY SHOULD WE USE AGILE?

The current info era is focused on **information and collaboration**, rather than **manufacturing**.

Value is moving on the **ownership of knowledge** which creates goods and services through....

### **KNOWLEDGE WORKERS.**

They are **IT specialists** but also **engineers, doctors, lawyers, writers, scientists**...becoming a large segment of the workforce of the countries

## 2nd LESSON-AGILE: GOALS and **AGILE VALUES**

### **AGILE MANIFESTO COMES BY EFFORTS IN DEVELOPING SOFTWARE TO VALUE:**

- 1-INDIVIDUALS AND INTERACTIONS OVER PROCESSES AND TOOLS**
- 2-WORKING SOFTWARE OVER COMPREHENSIVE DOCUMENTATION**
- 3-CUSTOMER COLLABORATION OVER CONTRACT NEGOTIATION**
- 4-RESPONDING TO A CHANGE OVER FOLLOWING A PLAN**

### **2nd LESSON-AGILE: VALUE 1**

**INDIVIDUALS AND INTERACTIONS  
OVER  
PROCESSES AND TOOLS**

MESSAGE:

**projects are undertaken by people not tools**

### **2nd LESSON-AGILE: VALUE 2**

**WORKING SOFTWARE  
OVER  
COMPREHENSIVE DOCUMENTATION**

MESSAGE:

**need to deliver, documentation just enough**

## 2nd LESSON-AGILE: VALUE 3

**CUSTOMER COLLABORATION  
OVER  
CONTRACT NEGOTIATION  
MESSAGE:**

be flexible and accomodating

IT PM PART 2: PROPER SOFTWARE METHODOLOGIE  
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17

## 2nd LESSON-AGILE: VALUE 4

**RESPONDING TO A CHANGE  
OVER  
FOLLOWING A PLAN**

MESSAGE:

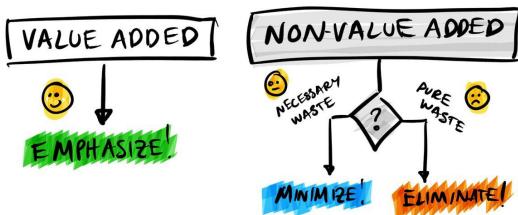
broaden the number of people to be engaged by adjusting the plans and evaluate the impact of changes

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18

## 2nd LESSON-AGILE: VALUES

KINDS OF ACTIVITIES:



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19

### 2nd LESSON :AGILE: GOALS and PRINCIPLES KNOWLEDGE PROJECTS

INDUSTRIAL/MANUFACTURING WORK	KNOWLEDGE WORK
VISIBLE	INVISIBLE
STABLE	CHANGING
EMPHASIS ON RUNNING THINGS	EMPHASIS ON CHANGING THINGS
MORE STRUCTURE WITH FEWER DECISIONS	LESS STRUCTURE WITH MORE DECISIONS
FOCUS ON THE RIGHT ANSWERS	FOCUS ON THE RIGHT QUESTIONS
DEFINE THE TASK	UNDERSTAND THE TASK
COMMAND AND CONTROL	AUTONOMY
STRICT STANDARDS	CONTINUOUS INNOVATION
FOCUS ON QUANTITY	FOCUS ON QUALITY
MEASURE PERFORMANCE TO STANDARDS	CONTINUOUSLY LEARN AND TEACH

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20

### 2nd LESSON :AGILE: GOALS and PRINCIPLES KNOWLEDGE PROJECTS

**PREDICTIVE AGILE**



**DEFINABLE WORK HIGH-UNCERTAINTY WORK**

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21

### 2nd LESSON -AGILE: KNOWLEDGE PROJECTS UNCERTAINTY: FROM DEFINITION TO EMPIRICISM

Industrial work uses a **defined** process (steps defined in advance)  
Knowledge work relies on **empirical** process (trials to check what works)  
Empiricism is based on  
-small successes  
-iterations  
-incremental reviews  
-adaptation

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22

### 2nd LESSON :AGILE: GOALS and PRINCIPLES KNOWLEDGE PROJECTS

Definition of an upfront and unchanging view of what should be built is hard

1. Knowledge work products have a dynamic mature, mainly software
2. Software is intangible and difficult to reference
3. Business needs change quickly
4. Technology changes rapidly
5. Companies rarely plan the same system twice

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23

### 2nd LESSON-AGILE: GOALS and PRINCIPLES KNOWLEDGE PROJECTS

HIGH-UNCERTAINTY PROJECTS HAVE HIGH RATES OF

**CHANGE  
COMPLEXITY  
RISK**

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24

## 2nd LESSON-AGILE: GOALS and PRINCIPLES ☐

### KNOWLEDGE PROJECTS

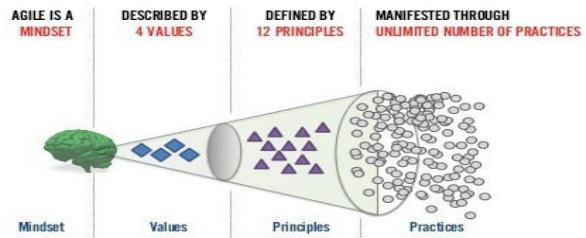
TRADITIONAL PREDICTIVE APPROACHES AIM TO DETERMINE THE BULK OF THE REQUIREMENTS UPFRONT AND BY CONTROLLING CHANGES THROUGH A CHANGE REQUEST PROCESS

AGILE APPROACHES AIM TO EXPLORE FEASIBILITY IN SHORT CYCLES AND TO ADAPT QUICKLY ON EVALUATION AND FEEDBACK

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25

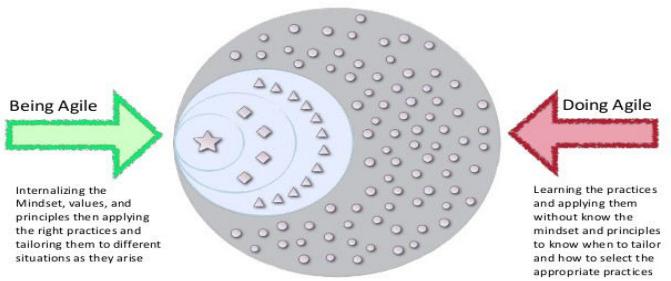
## 2nd LESSON-AGILE MINDSET, VALUES,PRINCIPLES,PRACTICES



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26

## MINDSET:AN INTERNALIZING PROCESS



## AGILE PRINCIPLES

1. HIGHEST PRIORITY: CUSTOMER SATISFACTION THROUGH EARLY AND CONTINUOUS DELIVERY OF VALUABLE SOFTWARE
2. WELCOME CHANGING REQUIREMENTS FOR CUSTOMER'S ADVANTAGE
3. DELIVER WORKING SOFTWARE FREQUENTLY
4. BUSINESS PEOPLE AND DEVELOPERS TOGETHER DAILY
5. MOTIVATE INDIVIDUALS GIVING THEM ENVIRONMENT,SUPPORT,TRUST
6. PROMOTE FACE TO FACE CONVERSATION TO CONVEY INFORMATION
7. WORKING SOFTWARE IS A PRIMARY MEASURE OF PROGRESS
8. MAINTAIN A CONSTANT PACE INDEFINITELY
9. PAY CONTINUOUS ATTENTION TO EXCELLENCE OF TECHNOLOGY AND DESIGN
- 10.SIMPLICITY IS ESSENTIAL
- 11.THE BEST ARCHITECTURES&DESIGNS COME FROM SELFORGANIZING TEAMS
- 12.TEAM REGULAR REFLECTION ON MORE EFFICIENCY, THEN TUNING&ADJUSTING

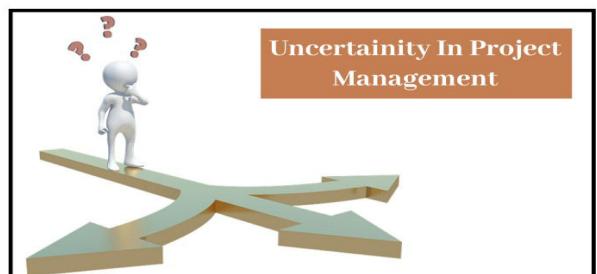
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28

## 2nd LESSON-AGILE:LIFE CYCLE SELECTION:WHERE

APPROACH	REQUIREMENTS	ACTIVITIES	DELIVERY	GOAL
PREDICTIVE	FIXED	PERFORMED ONCE FOR THE ENTIRE PROJECT	SINGLE DELIVERY	MANAGE COST
ITERATIVE	DYNAMIC	REPEATED UNTIL CORRECT	SINGLE DELIVERY	CORRECTNESS OF SOLUTION
INCREMENTAL	DYNAMIC	PERFORMED ONCE FOR A GIVEN INCREMENT	FREQUENT SMALLER DELIVERIES	SPEED
AGILE	DYNAMIC	REPEATED UNTIL	FREQUENT SMALL	CUSTOMER VALUE VIA

## AGILE PRACTICES (HOW)



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30

## PRACTICES IN UNCERTAIN ENVIRONMENTS

- UNCERTAINTY:HIGH LIKELIHOOD OF CHANGES,WASTED WORK AND REWORK
- ADAPTATION TO CHANGES;THROUGH ITERATIVE AND INCREMENTAL **PRACTICES**:
- VERY SHORT FEEDBACK LOOPS**
- FREQUENT ADAPTATION OF PROCESS**
- REPRIORITIZATION** and **REGULARLY UPDATED PLANS**
- FREQUENT DELIVERY**

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## GENERAL PRACTICE: SET CLEAR AGREEMENTS

FOR AN AGILE PROJECT THEY ARE NECESSARY:

### **1-PROJECT PURPOSE**

(why are we doing this project? Who benefits and how?)

### **2-WORKING AGREEMENTS**

(what does **DONE** mean? How are we working together?)

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32

31

## CREATING AN AGILE ENVIRONMENT

- ADOPT AN AGILE **MINDSET** AND BUILD A FOUNDATIONAL TRUST
- EMPOWER TEAMS BY A **SERVANT LEADERSHIP** and FOCUS ON RESULTS
- BUILD PROJECTS AROUND **MOTIVATED INDIVIDUALS**
- FOCUS ON RAPID PRODUCT DEVELOPMENT TO **OBTAIN FEEDBACK**
- ENCOURAGE **SELF-MANAGING TEAMS**
- FOCUS ON A **LIMITED NUMBER OF REQUIREMENTS** TO MEET IN A GIVEN PERIOD
- TRY TO **GENERALIZE SPECIALISTS**

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33

## ROLES FOR AN AGILE ENVIRONMENT

- CROSS FUNCTIONAL TEAM MEMBERS**
- PRODUCT OWNER**
- TEAM FACILITATOR**

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34

## MAJOR AGILE PRACTICES

- 1-RETROSPECTIVE&BACKLOG
- 2-DAILY STANDUPS
- 3-DEMONSTRATION REVIEWS
- 4-PLANNING FOR ITERATION TO DELIVER
- 5-EXECUTION FOCUSED ON VALUE
- 6-TROUBLESHOOTING
- 7-MEASUREMENTS AND RESULTS

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35

## IMPLEMENTING AGILE PRACTICES

- 1-RETROSPECTIVE&BACKLOG
  - a-learning from previous work (principle 12:TEAM REGULAR REFLECTION)
- b-ITERATIONS (mainly 2 weeks) to prompt demonstration and retrospective
- c-ANY RELEASE, EVEN SMALL, CALLS FOR RETROSPECTIVE
- d-Backlog is the ordered list of all the work, in a story form, for the team

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36

## IMPLEMENTING AGILE PRACTICES

### 2-DAILY STANDUPS

Standups (max 15 min) are used to microcommitt and uncover issues in the team

Questions to be answered:

- what did I complete since the last standup?
- what am I planning to complete between now and the next standup?
- what are my risks and problems?

Teams run their own standups with intense collaboration

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37

## IMPLEMENTING AGILE PRACTICES

### 3-DEMONSTRATION REVIEWS

As the team completes the features,periodically demonstrates the product

A crucial part of what makes a project agile is a frequent delivery of the product

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38

## IMPLEMENTING AGILE PRACTICES

### 4-PLANNING FOR ITERATION TO DELIVER

Teams estimate what they can complete which is a measure of capacity  
But they cannot know the unexpected: prediction of what they can deliver is uncertain

Agile teams do not plan just once in a single chunk: they

- plan a little,
- then deliver,
- then learn
- then replan a little more in an ongoing cycle

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39

## IMPLEMENTING AGILE PRACTICES

### 5-EXECUTION FOCUSED ON VALUE

(Practices mainly come from eXtreme Programming)

- CONTINUOUS INTEGRATION
- TEST ALL LEVELS
- TEST DRIVEN DEVELOPMENT (TDD)
- SPIKES

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40

## IMPLEMENTING AGILE PRACTICES

### 6-TROUBLESHOOTING

AGILE WAS BORN ON THE NEED TO SOLVE ISSUES ASSOCIATED WITH HIGH RATED OF CHANGE,UNCERTAINTY,COMPLEXITY.

SO A VARIETY OF TOOLS AND TECHNIQUES IS AVAILABLE FOR DEALING WITH ISSUES THAT PRESENT PROBLEMS IN PREDICTIVE APPROACHES

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41

## AGILE PAIN POINTS AND TROUBLESHOOTING (1)

PAIN POINT	TROUBLESHOOTING POSSIBILITIES
UNCLEAR PURPOSE OR MISSION FOR THE TEAM	AGILE CHARTERING FOR PURPOSE:VISION,MISSION,MISSION TESTS
UNCLEAR WORK AGREEMENTS	AGILE CHARTERING FOR ALIGNMENT:VISION,MISSION,AGREEMENTS
UNCLEAR TEAM CONTEXT	AGILE CHARTERING FOR CONTEXT:BOUNDARIES, PROSPECTIVE ANALYSIS
UNCLEAR REQUIREMENTS	HELP STAKEHOLDERS CRAFT A VISION. BUILD A ROADMAP BY EXAMPLE,STORY MAPPING,IMPACT MAPPING, CLARIFY TEAM EXPECTATIONS OF A REQUIREMENT. DECOMPOSE BACKLOG TO SMALLER,CONCRETE REQUIREMENTS
POOR USER EXPERIENCE	INVOLVE USERS EARLY AND OFTEN
INACCURATE ESTIMATION	SPLIT STORIES
UNCLEAR WORK ASSIGNMENT	SELF MANAGEMENT OF THE TEAM
TEAM STRUGGLES WITH OBSTACLES	A SERVANT LEADER IS NEEDED TO HELP CLEARING THE OBSTACLES
DELAYS DUE TO NOT REFINED PRODUCT BACKLOG	PAIR WORK, PERVERSIVE TESTING, ROBUST DEFINITION OF
DEFECTS	PAIR WORK, PERVERSIVE TESTING, ROBUST DEFINITION OF

## AGILE PAIN POINTS AND TROUBLESHOOTING (2)

PAIN POINT	TROUBLESHOOTING POSSIBILITIES
NOT COMPLETE WORK	TEAM DEFINES «DONE», ACCEPTANCE CRITERIA,RELEASE CRITERIA
DEGRADED CODE QUALITY	REFACTORING,PERVERSIVE TESTS, AUTOMATED CODE QUALITY ANALYSIS
TOO MUCH COMPLEXITY	USE SIMPLE SMALL STEPS TO GET FUNCTIONALITY
SLOW IN THE TEAMWORK PROCESS	CAPTURE NO MORE THAN 3 ITEMS TO IMPROVE EACH RETROSPECTIVE
UPFRONT WORK LEADING TO REWORK	SEE OPTIONS FOR VALUE INSTEAD OF DESIGNS,SHORTEN ITERATIONS
FALSE STARTS,WASTED EFFORTS	ASK THE PRODUCT OWNER TO BE AN INTEGRAL PART OF THE TEAM
INEFFICIENT PRODUCT BACKLOG	RANK WITH VALUE BASED ON DELAY COST DIVIDED BY DURATION
RUSH/WAIT UNEVEN FLOW OF WORK	PLAN TO THE TEAM'S CAPACITY AND NOT MORE

43

## TROUBLESHOOTING MOST FREQUENT PRACTICES

- DECOMPOSE BACKLOG TO SMALLER,CONCRETE REQUIREMENTS
- INVOLVE USERS EARLY AND OFTEN
- SPLIT STORIES
- SELF MANAGEMENT OF THE TEAM
- PAIR WORK
- PERVERSIVE TESTING
- ROBUST DEFINITION OF DONE
- SEE OPTIONS FOR VALUE INSTEAD OF DESIGNS
- SHORTEN ITERATIONS

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44

## IMPLEMENTING AGILE PRACTICES

### 7- ORGANIZATIONAL PROJECT AGILITY: MEASUREMENTS AND RESULTS

- TRANSITIONING TO AGILE MEANS DIFFERENT MEASUREMENTS
- NEW METRICS FOCUS ON CUSTOMER VALUE
- A PROJECT 90% COMPLETED DOESN'T MEAN THAT A LITTLE EFFORT IS NECESSARY TO TRANSFORM IT IN A PRODUCT
- PREDICTIVE MEASUREMENTS

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45

## REMOTE TEAMS

A lot of people work from home these days and many weren't used to it  
A period of adjustment was needed  
Companies tried to provide virtual collaboration software by allowing customers to expand the use of the platforms without additional costs.  
**But successful remote working is more than just to get the right software solution**  
It requires a different mindset, a different way of collaborating  
**The ability to move the project forward is important to people right now as they look for some sense of continuity in a time of extreme disruption.**

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46

## AGILE IN SHORT

- 1-METHOD FOR KNOWLEDGE PROJECTS IN A UNCERTAIN ENVIRONMENT
- 2-HIGH-UNCERTAINTY PROJECTS DEAL WITH HIGH CHANGE, COMPLEXITY,RISK
- 3-ITERATIVE&EMPIRICAL,IN **SPRINTS**, WHICH BUILD FROM THE PREVIOUS ONE
- 4-VALUES:INDIVIDUALS,SOFTWARE,COLLaborATION,CHANGE
- 5-FRAMING AGILE:MINDSET, VALUES,PRINCIPLES,PRACTICES
- 6-ROLES: TEAM MEMBERS,PRODUCT OWNER,TEAM FACILITATOR

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47

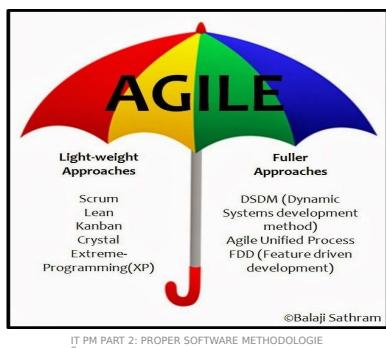
## AGILE MAIN AND GOAL

**NOT TO BE AGILE FOR ITS OWN SAKE  
BUT  
TO PROVIDE CLIENTS WITH A NONSTOP FLOW OF**

**VALUE**

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48



THANKS FOR YOUR ATTENTION: NEVER FORGET THAT PROJECT MANAGEMENT IS OVERHEAD

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NEXT LESSON 3 (APRIL 10 2025)

### 3. AGILE METHODOLOGIES OVERVIEW (WITHOUT SCRUM WHICH WILL BE TREATED IN A SEPARATE LESSON)

## The Project Management for IT Projects: AGILE METHODOLOGIES OVERVIEW WITHOUT SCRUM

### LESSON 3

Mario Salano  
April – May 2025

### The Project Management for IT Projects: part 2 INNOVATIVE PROJECTS

The second part of the course is focused on innovative projects.  
Steps:

- Basic Concepts: INNOVATION, AGILITY, VALUE DRIVEN DELIVERY
- How to run a Project according to AGILE, LEAN and DESIGN THINKING (the 3 most important methodologies)
- A real life experience

## Course agenda (part 2:INNOVATIVE PROJECTS)

1. INNOVATION AND METHODOLOGIES
2. AGILE CONCEPTS
3. AGILE METHODOLOGIES OVERVIEW WITHOUT SCRUM
  4. SCRUM
  5. LEAN
  6. DESIGN THINKING
  7. VALUE DRIVEN DELIVERY
  8. STAKEHOLDERS, TEAMS,ADAPTIVE PLANNING
  9. CASE STUDIES
  10. EXERCISES
  11. CONTINUOUS IMPROVEMENT AND
  12. FINAL REVIEW

### OBJECTIVES

- SUPPORT TO STUDENTS TO FACE THE REAL WORK LIFE OF TODAY
- IT IS NOT ANYMORE ENOUGH GOOD WILL AND PREPARATION
- EFFECTIVE METHODS AND THE AWARENESS OF A LIFE LEARNING ARE NEEDED

THE WORLD IS MORE AND MORE “PROJECTIZED”  
SO PROJECT MANAGEMENT, WITH UPDATES, BUT WITH ITS BASIC CULTURE, BECOMES A **FORMIDABLE ASSET**

### PREVIEW OF TODAY LESSON 3: AGILE METHODOLOGIES OVERVIEW (WITHOUT SCRUM)

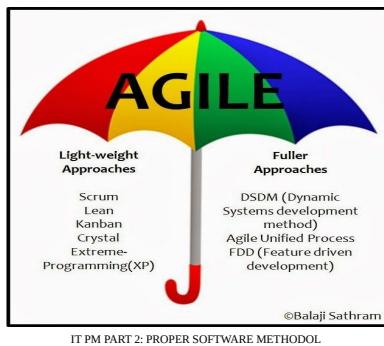
1. WE will go through **AGILE METHODOLOGIES** (without SCRUM as a dedicated lesson will be held on it) but +hybrid
2. Project Management is the main discipline **to do**

### AGILE METHODOLOGIES

Different types of projects require different **METHODS**

GOAL:give clients a non stop flow of **VALUE**

## AGILE METHODOLOGIES



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## 8+1 MAIN METHODOLOGIES

### SOME SPECIFIC TERMINOLOGY

- SPIKE: A SHORT TIME INTERVAL ,DURING WHICH A TEAM CONDUCTS RESEARCH OR PROTOTYPES ON A SOLUTION TO PROVE ITS VIABILITY
- DevOps: PRACTICES FOR CREATING A SMOOTH FLOW OF DELIVERING BY IMPROVING COLLABORATION BETWEEN DEVELOPMENT AND OPERATIONS STAFF
  - LIFE CYCLE: THE PROCESS THROUGH WHICH A PRODUCT IS **IMAGINED**, **CREATED**, **PUT IN USE**

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## MAIN METHODOLOGIES COMMON FEATURES

**Rigor without rigidity: how to achieve balance not forgetting that**

## RIGIDITY IS THE ANTITHESIS OF AGILE

Agile practices build this ability by :

- breaking up large batches of design into much smaller ones
- striving to make the batches as independent as possible

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## RIGIDITY IS THE ANTITHESIS OF AGILE



BE FLEXIBLE

## HEAVYWEIGHT&LIGHTWEIGHT METHODOLOGIES

A **heavyweight methodology** is a complex method with many rules

A **lightweight methodology** is a simple method with a few rules.  
It emphasizes the need to deal with change in requirements by being **flexible and adaptive**

- User requirements play a key role in both methodologies

## HEAVYWEIGHT METHODOLOGIES

Based on a **sequential** series of steps, such as requirements definition, solution build, testing and deployment.

The IT solution isn't built until the full requirements are determined.

Any team larger than 10-20 people and working in multiple locations is a good candidate for a heavyweight methodology as a tighter control and higher formalization are needed

## LIGHTWEIGHT METHODOLOGIES:less documented&more code oriented

Proper change accomodation.  
People orientation rather than process orientation  
Large use of dynamic checklists.  
Small project teams  
Fostering knowledge sharing by learning after each iteration issues  
Frequent cycles provide more opportunities for clients to review requirements for new needs.  
No "heavy" project documentation but focus on the schedule  
Focus on value-added releases and addressing architectural risk early

## DECISION BETWEEN HEAVYWEIGHT AND LIGHTWEIGHT METHODOLOGIES

A wrong methodology is critical to the project. 10 essential points to be evaluated:

1. Budget
2. Team size
3. Project criticality
4. Technology used
5. Documentation
6. Training
7. Best practices/lessons learned
8. Tools and techniques
9. Existing processes
10. Software type

## 8 MAIN METHODOLOGIES+HYBRID MODELS

### So which is best?

A methodology must be simple, clearly effective, small in terms of required work

The acceptance of a methodology is limited by the group's ability to change its work habits and by its tolerance for seemingly bureaucratic content.

The lightweight methodology approach exemplified by XP,Crystal,Lean,Kanban, Scrum, is more popular for smaller teams

### BUT...NEVER FORGET THAT...

## GOAL IS PRODUCTIVITY&VALUE

### Process Productivity Killers



Multiple Answers selection  
www.krosswall.com

## 8+1 MAIN METHODOLOGIES

### **HEAVYWEIGHT (FULL) :**

- FDD: FEATURE-DRIVEN DEVELOPMENT
- DSDM:DYNAMIC SYSTEMS DEVELOPMENT METHOD
- AUP

### **LIGHTWEIGHT :**

- XP:EXTREME PROGRAMMING
- LEAN PRODUCT DEVELOPMENT
- KANBAN
- CRYSTAL
- SCRUM

### **HYBRID MODELS**

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## 8+1 MAIN METHODOLOGIES

METH OD	TYPE	KEY POINTS	SPECIAL FEATURES	STRENGHTS	WEAKNESSES
FDD	HEAVYWEIG HT	perspective of features valued by customers	use of cumulative flow diagrams	scalability	poor documentation to the client
DSDM	HEAVYWEIG HT	Attention to early architectural aspects	Business needs	Deliver on time&clear communication	Lack of details for developers
AUP	HEAVYWEIG HT	team know what they're doing.	A development release iteration	Simplicity versus the forefather RUP	Need of expert developers
XP	LIGHTWEIG HT	customer driven	Test-first scheme	Customer involvement	No measure of quality
LEAN	LIGHTWEIG HT	Visual tools	Waste elimination	Quality&speed	success depends on good technical skills
KANBAN	LIGHTWEIG HT	signboard	visualization	flexibility	Lack of timing

## FDD FEATURE-DRIVEN DEVELOPMENT SIMPLE YET POWERFUL APPROACH

FDD IS BASED ON THE **PERSPECTIVE OF FEATURES VALUED BY CLIENTS**

THIS METHODOLOGY POPULARIZED TRACKING AND DIAGNOSTIC TOOLS LIKE **CUMULATIVE FLOW DIAGRAMS** (ONE PAGE SUMMARIES OF PROJECT PROGRESS)

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## CUMULATIVE FLOW DIAGRAM

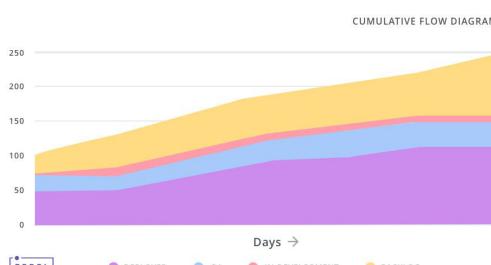
It is an [area graph](#) that depicts the quantity of work in a given state- Structured on 2 axis: number of features to be developed and the spent time

4 different relationships are reported:

- Completed tasks
- Under test tasks
- Under processing tasks
- Not yet started tasks

CFDs have a strong focus on identifying and rooting out the causes of dramatic changes in throughput.

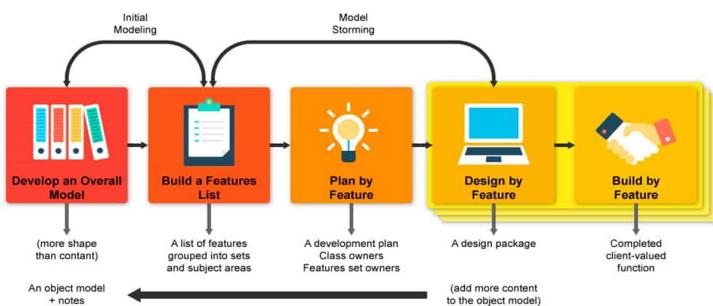
## CUMULATIVE FLOW DIAGRAM



## FDD FEATURE-DRIVEN DEVELOPMENT

1. DEVELOP A GENERAL MODEL FOR THE PRODUCT
2. BUILD A FEATURES LIST
3. PLAN THE WORK
4. MOVE THROUGH DESIGN BUILDING ITERATIONS BUILD THE FEATURES

## FDD FEATURE-DRIVEN DEVELOPMENT



## FDD FEATURE-DRIVEN DEVELOPMENT

### FDD PRACTICES (FROM SOFTWARE ENGINEERING)

1. DOMAIN OBJECT MODELING
2. DEVELOPING BY FEATURE
3. INDIVIDUAL CLASS (CODE) OWNERSHIP
4. FEATURE TEAMS
5. INSPECTIONS
6. CONFIGURATION MANAGEMENT
7. REGULAR BUILDS
8. VISIBILITY OF PROGRESS AND RESULTS

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## FDD FEATURE-DRIVEN DEVELOPMENT:1

DOMAIN OBJECT MODELING=EXPLORATION OF BUSINESS ENVIRONMENT OF THE PROBLEM TO BE SOLVED

In software engineering, a **domain model** is a conceptual model of the domain that contains both behaviour and data.

## FDD FEATURE-DRIVEN DEVELOPMENT:2

DEVELOPING BY FEATURE=BREAKING FUNCTIONS DOWN INTO TWO WEEKS OR SHORTER CHUNKS OF WORK AND CALLING THEM

### FEATURES

## FDD FEATURE-DRIVEN DEVELOPMENT:3

INDIVIDUAL CLASS (CODE) OWNERSHIP:

AREAS OF CODE WITH A SINGLE OWNER FOR CONSISTENCY, PERFORMANCE, CONCEPTUAL INTEGRITY

## FDD FEATURE-DRIVEN DEVELOPMENT:4

SMALL, DYNAMICALLY FORMED TEAMS THAT REVIEW DESIGNS AND ALLOW MULTIPLE DESIGN OPTIONS TO BE EVALUATED BEFORE A DESIGN IS CHOSEN.

THE GOAL IS RISK MITIGATION OF INDIVIDUAL OWNERSHIP

## FDD FEATURE-DRIVEN DEVELOPMENT:5

INSPECTIONS:

REVIEWS THAT HELP ENSURE GOOD-QUALITY DESIGN AND CODE

## FDD FEATURE-DRIVEN DEVELOPMENT:6

CONFIGURATION MANAGEMENT:

LABELING CODE, TRACKING CHANGES, MANAGING THE SOURCE CODE

## FDD FEATURE-DRIVEN DEVELOPMENT:7

REGULAR BUILDS:

ASSURANCE THAT THE NEW CODE INTEGRATES WITH THE EXISTING ONE

IT ALSO ALLOWS AN EASY CREATION OF DEMO

## FDD FEATURE-DRIVEN DEVELOPMENT:8

VISIBILITY OF PROGRESS AND RESULTS=

TRACKING PROGRESS BASED ON THE COMPLETED WORK

## FDD FEATURE-DRIVEN DEVELOPMENT

ADVANTAGES	DISADVANTAGES
Very good understanding of project's scope and context	Not ideal on smaller projects and where there are only a few developers as it is hard to take on various roles.
Fewer meetings. Use of documentation to communicate.	High dependency on a chief programmer who acts as coordinator, lead designer, mentor.
User-centric approach: the client is the end user.	No written documentation to the client, although there is a lot of documented communication among team members.
Works well with large-scale, long-term projects. It is very scalable growing as the project grows. The five steps make it easier to come up to speed	Emphasizes individual code ownership instead of a shared team ownership.
Breaks feature sets into smaller chunks and regular iterative releases, which makes it easier to track and fix coding errors, reduces risk, and allows a quick turnaround	May not work well with older systems because there is already a system in place and no overall model to define it

## FDD FEATURE-DRIVEN DEVELOPMENT

### WHEN IS IT WORTH TO ADOPT FDD?

This agile methodology is well-suited for long-term projects that continually change and add features in regular, predictable iterations.

## DSDM:DYNAMIC SYSTEM DEVELOPMENT METHOD

ONE OF THE EARLIER AGILE METHODS, QUITE PERSPECTIVE AND DETAILED

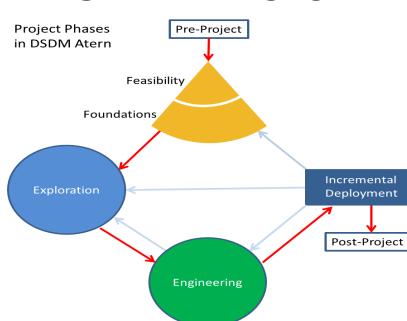
BROAD COVERAGE OF THE PROJECT LIFE CYCLE, ENCOMPASSING ASPECTS OF AGILITY,

**RANGING FROM FEASIBILITY AND BUSINESS CASE TO IMPLEMENTATION THROUGH EXPLORATION AND ENGINEERING**

## DSDM:DYNAMIC SYSTEM DEVELOPMENT METHOD

METHOD	TYPE	KEY POINTS	SPECIAL FEATURES	STRENGTHS	WEAKNESSES
FDD	HEAVYWEIGHT	perspective of features valued by customers	use of cumulative flow diagrams	scalability	poor documentation to the client
DS DM	HEAVY WEIGHT	Attention to early architect. aspects	Business needs	Deliver on time&clear communication	Lack of details for developers
AUP	HEAVYWEIGHT	team know what they're doing.	A development release iteration	Simplicity versus the forefather RUP	Need of expert developers
XP	LIGHTWEIGHT	customer driven	Test-first scheme	Customer involvement	No measure of quality
LEAN	LIGHTWEIGHT	Visual tools	Waste elimination	Quality&speed	success depends on good technical skills

## DSDM LIFE CYCLE



## DSDM PRINCIPLES

1. FOCUS ON BUSINESS NEEDS
2. DELIVER ON TIME
3. COLLABORATE
4. NEVER COMPROMISE QUALITY
5. BUILD INCREMENTALLY FROM FIRM FOUNDATIONS
6. DEVELOP ITERATIVELY
7. COMMUNICATE CONTINUOUSLY AND CLEARLY
8. DEMONSTRATE CONTROL

## DSDM: THE FOREFATHER

DSDM INFLUENCED THE DEVELOPMENT OF AGILE BY HELPING TO POPULARIZE --**EARLY ARCHITECTURAL CONSIDERATIONS**

-AGILE CONTRACTS

**-AGILE SUITABILITY FILTERS:** tools assessing if an agile approach fits a project, subjective and not predictors of suitability or project success. They should be used as conversation starters and where risks may occur

## AUP:AGILE UNIFIED PROCESS

A SIMPLICISTIC AND UNDERSTANDABLE APPROACH TO DEVELOPING BUSINESS APPLICATION SOFTWARE USING AGILE TECHNIQUES AND CONCEPTS

IT IS A SIMPLIFIED VERSION OF THE RATIONAL UNIFIED PROCESS (RUP) THAT CAN NOT BE CLASSIFIED AS AGILE

## AUP and RUP

- The AUP is created by the Agile Alliance.
- The RUP is created by Rational Software.

### RUP MAIN FEATURES:

- Use-case driven from inception to deployment.
- Architecture-centric as a function of user needs.
- Iterative and incremental: large projects are divided into smaller ones

### MAIN METHODOLOGIES

METHOD	TYPE	KEY POINTS	SPECIAL FEATURES	STRENGTHS	WEAKNESSES
FDD	HEAVYWEIGHT	perspective of features valued by customers	use of cumulative flow diagrams	scalability	poor documentation to the client
DSDM	HEAVYWEIGHT	Attention to early architectural aspects	Business needs	Deliver on time & clear communication	Lack of details for developers
AU P	HEAVY WEIGHT	team know what they're doing.	development release iteration	Simplicity versus forefather RUP	Need of expert developers
XP	LIGHTWEIGHT	customer driven	Test-first scheme	Customer involvement	No measure of quality
LEAN	LIGHTWEIGHT	Visual tools	Waste elimination	Quality & speed	success depends on good technical skills
KANBAN	LIGHTWEIGHT	signboard	visualization	flexibility	Lack of timing
CRYSTAL	LIGHTWEIGHT	Family of custom methods	People focus	Frequent deliveries	Only small teams

### AUP:AGILE UNIFIED PROCESS

- The Agile Unified Process distinguishes between two types of iterations.
- A development release iteration results in a deployment to the quality-assurance and/or demo area.
- A production release iteration results in a deployment to the production area. This is a significant refinement to the Rational Unified Process.

The Agile Unified Process distinguishes between two types of iterations.

Project Timeline



◆ A Development Release iteration results in a deployment to the Stage/QA area

◆ A Production Release iteration results in a deployment to the Production area

### AUP:AGILE UNIFIED PROCESS

#### MAIN PRACTICES:

- test-driven development (TDD)
- agile modeling (AM)
- agile change management
- database refactoring to improve productivity.

### AUP:AGILE UNIFIED PROCESS

#### 1. test-driven development (TDD)

A software development process based on the repetition of a very short development cycle with requirements turned into specific test cases.

After code efficient improvement tests pass.

Opposed to software development allowing code addition even if not proven to meet requirements.

#### AUP:AGILE UNIFIED PROCESS

2. agile modeling (AM) :methodology to document and model software
- 3.Document continuously and as late as possible
- 4.Requirements are specified in the form of executable "customer tests", instead of non-executable "static" documentation.
- 5.Information (models, documentation, software), is stored in one place only
- 6.Light-weight, high-level modeling,just barely good enough (JBGE)
- 7.Prioritized requirements

#### AUP:AGILE UNIFIED PROCESS

3. database refactoring to improve productivity  
Database refactoring does not change the way data is interpreted or used and does not fix bugs or add new functionality.  
Refactoring a database is performed when it is requested:  
-To develop the schema in an evolutionary manner in parallel with the evolutionary design of the rest of your system.  
-To fix design problems with an existing legacy database schema.  
-To implement what would be a large change as a series of small, low-risk changes.

#### AUP:AGILE UNIFIED PROCESS

4. agile change management  
**Change management** is a structured approach for people and organizations which fosters transition from a current arrangement to a new desired one.  
It's a new concept that carries great benefits to organizations  
A combination of agile with change management get the best of both worlds.  
-Determine the Scope of the Change and of Incorporating the Change  
-Gain Approval or Rejection of the Change. ...  
-Communicate and Implement an Approved Change Request. ...
- Manage Change or It Will Manage You!**

#### 3rd LESSON (part 1):8 MAIN METHODOLOGIES

#### XP:EXTREME PROGRAMMING

#### FOCUS: SOFTWARE DEVELOPMENT BEST PRACTICES

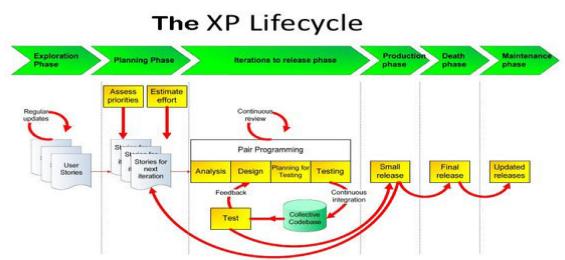
IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

#### 3rd LESSON (part 1):8 MAIN METHODOLOGIES XP:EXTREME PROGRAMMING (1)

- CORE VALUES:
- SIMPLICITY:FIND THE SIMPLEST ABLE TO WORK THING AND BUILD THE SOLUTION FIRST
- COMMUNICATION: MAKE SURE ALL THE TEAM MEMBERS KNOW WHAT IS EXPECTED OF THEM AND WHAT OTHERS ARE WORKING ON
- FEEDBACK: GET IMPRESSIONS OF SUITABILITY EARLY BY THE TEAM
- COURAGE: ALLOW WORK ENTIRELY VISIBLE TO OTHERS AND SHARE CODE
- RESPECT: THROUGH PAIR PROGRAMMING MEMBERS RECOGNIZE WORKING DIFFERENTLY AND RESPECT DIFFERENCES

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

#### 3rd LESSON (part 1):8 MAIN METHODOLOGIES XP:EXTREME PROGRAMMING (2)



IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

#### 3rd LESSON (part 1):8 MAIN METHODOLOGIES XP:EXTREME PROGRAMMING (3)

- XP teams use lightweight requirements («user stories») to plan releases and iterations
- Iterations are generally 2 weeks long and developers work in pair writing code with frequent and rigorous testing
- Then, after approval of customers,software is delivered as small releases

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

#### 3rd LESSON (part 1):8 MAIN METHODOLOGIES XP:EXTREME PROGRAMMING (4)

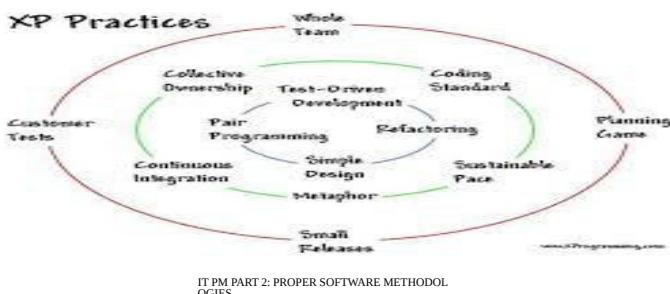
- #### XP TEAM ROLES
- COACH= mentor, facilitator helping the team become more effective  
CUSTOMER= business representative providing requirements and priorities and confirms that the product works as intended  
PROGRAMMERS=developers of the code for the requested user stories

TESTERS=providers of quality assurance also supporting the customer to define acceptance tests for the user stories

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

### 3rd LESSON (part 1):8 MAIN METHODOLOGIES XP:EXTREME PROGRAMMING (6)

#### XP PRACTICES



### 3rd LESSON (part 1):8 MAIN METHODOLOGIES XP:EXTREME PROGRAMMING (7)

1. WHOLE TEAM
  2. PLANNING GAMES
  3. SMALL RELEASES
  4. CUSTOMER TESTS
  5. COLLECTIVE CODE OWNERSHIP
  6. CODE STANDARDS
  7. SUSTAINABLE PACE
  8. METAPHOR
  9. CONTINUOUS INTEGRATION
  10. TEST DRIVEN DEVELOPMENT
  11. REFACTORING
  12. SIMPLE DESIGN
  13. PAIR PROGRAMMING
- IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

### 3rd LESSON (part 1):8 MAIN METHODOLOGIES XP:EXTREME PROGRAMMING (8)

#### When Is Xp Not Appropriate

- Concurrent middleware development. Here the enormous number of existing usage scenarios combined with the impossibility of reliably unit testing for correct concurrency behaviour renders XP inapplicable. CRC cards, 'low-frequency' refactoring, and possibly some other practices adopted by XP do apply, but not the whole of XP.
  - OS kernels and device drivers. Similar rationale to concurrent middleware.
  - Safety critical systems where change has to be managed very carefully to preserve safety. Remember "Testing can only show the presence of errors, not their absence."
  - 'Legacy' systems where the volume of code far outstrips the time available to maintain it but where 'tinkering' is sometimes necessary. Unpleasant yes, but sometimes necessary.
  - When the whole project is making expensive-to-change decisions based on the software (e.g. changing (refactoring) an application that works well on distributed boxes to one that requires one big box after the hardware has been bought). Most of these probably change the SystemMetaphor too, though.
- IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

### 3rd LESSON (part 1):8 MAIN METHODOLOGIES KANBAN (=signboard) (1)

- DERIVED FROM THE LEAN PRODUCTION SYSTEM
- A BOARD SHOWS THE WORK ITEMS IN EACH STAGE OF A PRODUCTION PROCESS

TO DO	IN PROGRESS	DONE
AMEND ORDER	CREATE ORDER	DATABASE SCHEMA
ITEM DETAILS	STOCK SEARCH	LOGIN
ARCHIVE ORDER	STOCK UPDATE	
ORDER REFUND	PROCESS ORDER	

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

### 3rd LESSON (part 1):8 MAIN METHODOLOGIES KANBAN (=signboard) (2)

#### 5 PRINCIPLES

1. VISUALIZE THE WORKFLOW
  2. LIMIT WIP (WORK INPROGRESS)
  3. MANAGE FLOW
  4. MAKE PROCESS POLICIES EXPLICIT
  5. IMPROVE COLLABORATIVELY
- IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

### 3rd LESSON (part 1):8 MAIN METHODOLOGIES KANBAN (=signboard) (3)

#### DISTINCT DIFFERENTIATING FEATURE:

«PULL SYSTEM EMPLOYMENT» (LESS EMPHASIS ON ITERATIONS)  
IT MEANS WORK MOVEMENT THROUGH THE DEVELOPMENT PROCESS RATHER THAN PLANNING IN TIMEBOXED ITERATIONS

EACH TIME A KANBAN TEAM COMPLETES A WORK ITEM, IT TRIGGERS A «PULL» TO GO ON INTO THE NEXT ITEM

BUT ONLY SOME SLOTS ARE AVAILABLE AND WHENEVER THERE IS AN EMPTY SLOT IT IS A SIGNAL TO PULL WORK FROM PREVIOUS STAGES

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

### 3rd LESSON (part 1):8 MAIN METHODOLOGIES KANBAN (=signboard) (4)

#### WIP LIMITS

CAPPING THE NUMBER OF ITEMS THAT CAN BE IN A GIVEN STATE OF PROGRESS

THIS IS DEFINED BY THE COLUMNS IN THE KANBAN BOARD: ONCE THE LIMIT AT THE TOP OF A COLUMN IS REACHED, NO NEW ITEMS MAY BE MOVED INTO THAT COLUMN UNTIL ANOTHER ITEM IS MOVED OUT

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

### 3rd LESSON (part 1):8 MAIN METHODOLOGIES KANBAN (=signboard) (5)

#### • KANBAN BOARD WITH WIP LIMITS

Example of a Kanban Board					
Backlog	In Progress (3)	Peer Review (3)	In Test (1)	Done	Blocked
Fast Track/Defect					

OGIES

### 3rd LESSON (part 1):8 MAIN METHODOLOGIES KANBAN (=signboard) (6)

#### IMPORTANCE OF WIP LIMITS

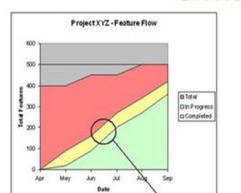
LOWERNG WIP INCREASES TEAM'S PRODUCTIVITY AND SPEEDS UP THE RATE AT WHICH THE WORK IS COMPLETED AS SHOWN BY

#### LITTLE'S LAW

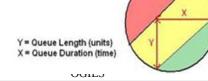
IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

### 3rd LESSON (part 1):8 MAIN METHODOLOGIES KANBAN (=signboard) (7)

#### Little's Law



**Little's Law:**  
Cycle times are proportional to queue lengths.  
(We can predict completion times based on queue size)



### 3rd LESSON (part 2):8 MAIN METHODOLOGIES CRYSTAL (1)

#### NOT A METHOD BUT A FAMILY OF SITUATIONAL&CUSTOMIZED ONES

METHODS ARE CODED BY COLOR NAMES AND ARE CUSTOMIZED BY CRITICALITY AND TEAM SIZE WHICH ALLOWS CRYSTAL TO COVER A WIDE RANGE OF PROJECTS FROM A SMALL TEAM BUILDING A LOW CRITICALITY SYSTEM TO A LARGE TEAM BUILDING A HIGH-CRITICALITY SYSTEM

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

### REVIEW: WHAT DID I TRY TO COMMUNICATE?

- MANY METHODOLOGIES WITHIN SOFTWARE PROJECTS
- FOCUS ON AGILE, AS MORE DIFFERENT VERSUS TRADITIONAL WATERFALL
- HEAVYWEIGHT (MORE RIGID) and LIGHT WEIGHT
- HEAVYWEIGHT:
  - FDD
  - DSDM
  - AUP

### PROJECT MANAGEMENT FOR IT REVIEW LESSONS 1-3

### AGILE~~ITERATION&REQUIREMENT~~

«**DONE**»

**METHODOLOGIES to get VALUE**

### PROJECT MANAGEMENT FOR IT REVIEW LESSON 3

- FDD~~model~~, features, cumulative flow diagrams
- DSDM~~feasibility, functionality, business needs~~
- AUP~~Simplicity (just development and production release)~~ versus the forefather RUP (Architecture-centric)
- KANBAN
- CRYSTAL
- HYBRID

### PROJECT MANAGEMENT FOR IT REVIEW OF LESSON 1,2,3

- INNOVATION
- METHODOLOGY
- REQUIREMENTS
- ITERATION
- VALUE DRIVEN

NEXT: LESSON 4

**THANKS**

**SCRUM**

# IT PROJECT MANAGEMENT-LESSON 4/2

## 4th LESSON

SCRUM

Mario Salano  
APRIL 16 2025

IT PM PART 2: PROPER SOFTWARE METHODOLOGIE  
S

1

## 2nd LESSON: AGILE GOALS&PRINCIPLES SECOND PART FILE ROUGE

1. INNOVATION AND METHODOLOGIES
2. AGILE GOALS&PRINCIPLES
3. AGILE METHODOLOGIES OVERVIEW WITHOUT SCRUM
- 4.SCRUM**
5. LEAN
6. DESIGN THINKING
7. VALUE DRIVEN DELIVERY
8. STAKEHOLDERS,TEAMS,ADAPTIVE PLANNING
9. CASE STUDIES
10. EXERCISES
11. CONTINUOUS IMPROVEMENT
12. CONCLUSION AND REVIEW

IT PM PART 2: PROPER SOFTWARE METHODOLOGIE  
S

2

## PROJECT MANAGEMENT FOR IT REVIEW LESSONS 1-4

## AGILE~~I~~TERATION&REQUI REMENT

«**DONE**»

## METHODOLOGIES to get ~~VALUE~~

IT PM PART 2: PROPER SOFTWARE METHODOLOGIE  
S

3

## PROJECT MANAGEMENT FOR IT REVIEW LESSONS 1-4

...after a general analysis of AGILE APPROACH we presented 3+5  
METHODOLOGIES **outlining 3 words:**

## ITERATION-REQUIREMENT- DONE

presenting these methodologies:

FDD,DSDM,AUP

XP,LEAN,KANBAN,CRYSTAL and finally to day

## SCRUM

IT PM PART 2: PROPER SOFTWARE METHODOLOGIE  
S

4

SCRUM (**EASY TO UNDERSTAND, HARD TO MASTER**)

### FILE ROUGE OF THIS PRESENTATION



IT PM PART 2: PROPER SOFTWARE METHODOLOGIE  
S

5

## SCRUM GENERAL QUICK VIEW

Scrum comes from rugby, meaning melee, a shooting phase of the game when the ball is contended between 2 groups of players pushing each other

**Currently more than 50% of companies which adopt agile, use Scrum**

IT PM PART 2: PROPER SOFTWARE METHODOLOGIE  
S

6

SCRUM is a simple methodology, based on  
:

**6 principles**

**4 phases**

**3 roles**

**4 artifacts**

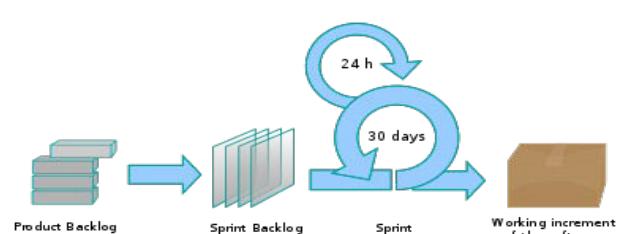
**5 events**

**EASY TO UNDERSTAND, HARD TO MASTER**

IT PM PART 2: PROPER SOFTWARE METHODOLOGIE  
S

7

## SCRUM IN A PICTURE



IT PM PART 2: PROPER SOFTWARE METHODOLOGIE  
S

8

## WHEN DOES SCRUM EXCELS?

SCRUM EXCELS WHEN SOFTWARE PROJECTS ARE:

- URGENT**
- COMPLEX**
- CRITICAL TO AN ORGANIZATION**
- WITH UNKNOWN, UNKNOWABLE, CHANGING REQUIREMENTS**

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9

## SCRUM: YES/NO

### NO

- PREScriptive PROCESS**
- GANTT CHARTS**
- TIME REPORTS**
- TASK ASSIGNMENTS**

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S

### YES

- A FEW SIMPLE RULES**
- MANY INSPECT CYCLES**
- FREQUENT ADAPT CYCLES**
- EVERYTHING**

10

### SCRUM MINDSET

SCRUM MINDSET IS FOCUSED ON:  
**PROJECT MANAGEMENT LEVEL**  
**BY PRIORITIZING WORK AND**  
**GETTING FEEDBACK**

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

11

### SCRUM: SIMPLICITY MUST NOT BE DECEPTIVE

SCRUM IS DISARMING SIMPLE WITH FEW AND  
**STRAIGHTFORWARD** RULES

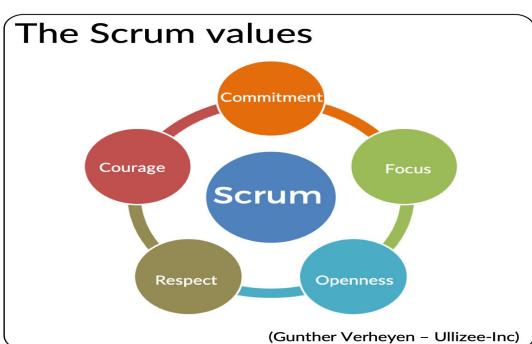
- NOT PRESCRIPTIVE=IT DOES NOT DESCRIBE WHAT TO DO ALWAYS
- FOR COMPLEX WORK WHEN IT IS IMPOSSIBLE TO PREDICT EVERYTHING
- BUT EVERYTHING IS KEPT VISIBLE SO ALLOWING QUICK ADJUSTMENTS

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S

12

### SCRUM VALUES



13

### SCRUM FUNDAMENTAL PRINCIPLES

1. Iterative development
2. Collaboration
3. Activities with certain duration
4. Management of priorities according to value
5. Process empirical control
6. Self organization

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

S

14

## SPRINTS

Scrum breaks down the traditional project management to gather it in

### small projects

**Sprints** are time-boxed iterations with planned durations of meetings.

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15

### SCRUM :PRINCIPLE 1: Iterative development

MANY PROCESSES WORK ONLY BECAUSE THE IMPRECISION DEGREE IS ACCEPTED  
A PROCESS THAT REPEATABLY PRODUCES ACCEPTABLE QUALITY IS CALLED **DEFINED PROCESS CONTROL**

WHEN THIS IS IMPOSSIBLE BECAUSE OF COMPLEXITY IT IS NECESSARY TO EMPLOY

### **EMPIRICAL PROCESS CONTROL**

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

S

16

## PRINCIPLE 1: Iterative development with poor quality

**Defined processes** are used whenever possible unless the rework for poor quality is unacceptable: in these cases it has to turn to

### **empirical process control**

which might become cheaper as it provides the right product at the first run

- 1. VISIBILITY**
- 2. INSPECTION**
- 3. ADAPTATION**

## 3 DIMENSIONS OF COMPLEXITY IN SOFTWARE DEVELOPMENT

**1. REQUIREMENTS:** how to get simple SW requirements by stakeholders with multiple and changing needs, understood by them only?

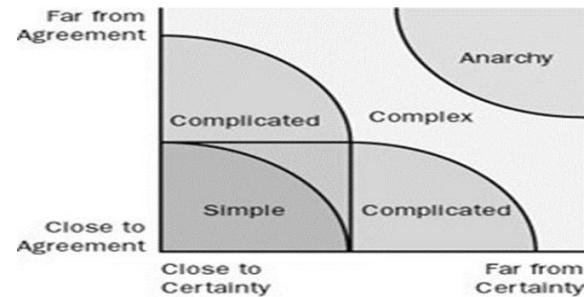
☒ get someone's else impression of what they want

**2. SIMPLE TECHNOLOGY:** rarely used in SW development often become chaotic ☒ issue to be resolved before work progress

**3. PEOPLE:** different skills, intelligences, experiences, viewpoints, attitudes; working together complexity goes through the roof

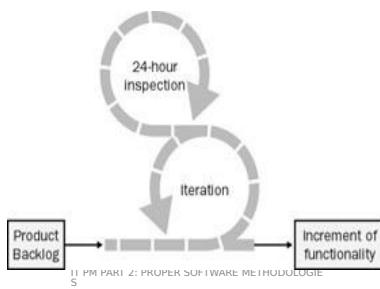
☒ visibility, inspections, adaptation practices must be implemented

## COMPLEXITY ASSESSMENT GRAPH: REQUIREMENTS VERSUS COMPLEXITY



## SCRUM SKELETON & RULES

### ALL SCRUM PRACTICES ARE BASED ON AN ITERATIVE,INCREMENTAL PROCESS



**SCRUM PHASES:** quite similar to those by PMI traditional/predictive approach

1. ITERATION START: REVIEW BY THE TEAM OF WHAT IT MUST BE DONE
2. SELECTION OF WHAT CAN BE TURNED INTO A SHIPPABLE FUNCTIONALITY (plan and estimate)
3. WORK (implementation)
4. PRESENTATION OF THE WORK TO STAKEHOLDERS AND TIMELY ADAPTATIONS (retrospective and release)

### SCRUM FLOW

**Vision** ☐ purpose of a project with clear set of working agreements

**Backlog** ☐ list of requirements

**Sprints** ☐ time-boxed iterations with planned durations of meetings.

**Retrospective meeting** ☐ regularly occurred workshop for work and results exploration to improve product and process

## SCRUM FLOW (1): VISION

A SCRUM PROJECT STARTS WITH A **VISION OF THE SYSTEM TO BE DEVELOPED**

-THE PRODUCT OWNER (REPRESENTATIVE OF STAKEHOLDERS' INTERESTS) PROVIDES:

1-FUNDING OF THE PROJECT FOR DELIVERING A VISION THAT MAXIMISES ROI

2-ISSUING A PLAN WITH PRODUCT BACKLOG AND LIST OF REQUIREMENTS

**THE PRODUCT BACKLOG IS PRIORITIZED ACCORDING TO ISSUING VALUE ITEMS**

## **SCRUM FLOW (2):BACKLOG**

- ALL WORK IS DONE IN SPRINTS (ITERATIONS OF ABOUT 30 DAYS)
- EACH SPRINT STARTS WITH A PLANNING MEETING (MAX 8 hours)
- SELECTING FROM THE HIGHEST PRIORITY PRODUCT BACKLOG**
- THE TEAM EVALUATES HOW MUCH OF THE DESIRED REQUIREMENTS CAN BE TURNED INTO FUNCTIONALITY OVER THE NEXT SPRINT
- EVERY DAY A SCRUM MEETING IS HELD WHERE EACH MEMBER DECLARES WHAT HE HAS DONE, WHAT HE PLANS,WHAT IMPEDIMENTS HE SEES

## **SCRUM FLOW (3):SPRINTS**

- AT THE END OF A SPRINT A REVIEW MEETING IS HELD (ABOUT 4 hours)
- THE TEAM PRESENTS THE WORK DONE DETERMINING WHAT TO DO NEXT

## **SCRUM FLOW (4):RETROSPECTIVE MEETING**

A RETROSPECTIVE MEETING ( ABOUT 3 HOURS) IS HELD TO REVISE THE PROCESS

**TO MAKE IT MORE EFFECTIVE**

## **ROLES IN SCRUM**

- 1.PRODUCT OWNER**
- 2.TEAM**
- 3.SCRUM-MASTER**
- 4.PIGS&CHICKENS**

## **PRODUCT OWNER**

- REPRESENTATIVE OF THE INTERESTS OF THE STAKEHOLDERS
- HE ACHIEVES FUNDING BY CREATING INITIAL REQUIREMENTS,ROI GOALS,PLAN

LIST OF REQUIREMENTS=PRODUCT BACKLOG, TO BE USED TO PRODUCE THE MOST VALUABLE FUNCTIONALITY FIRST

## **TEAM**

1. RESPONSIBLE FOR DEVELOPING FUNCTIONALITY
2. RESPONSIBLE FOR TURNING BACKLOG IN A FUNCTIONALITY INCREMENT
- 3.SELF-MANAGING**
- 4.SELF-ORGANIZING**
5. CROSS FUNCTIONAL

## **SCRUM-MASTER**

1. RESPONSIBLE FOR THE SCRUM PROCESS
2. RESPONSIBLE FOR TEACHING SCRUM TO EVERYONE IN THE PROJECT
3. RESPONSIBLE FOR IMPLEMENTING SCRUM IN THE ORGANIZATION'S CULTURE
4. RESPONSIBLE TO SHOW THAT EXPECTED BENEFITS ARE ACHIEVED
5. RESPONSIBLE TO ENSURE THAT EVERYONE FOLLOWS SCRUM RULES

## **PIGS&CHICKENS**

### **PIGS: CREATE MOMENTUM**

OCCUPANTS OF ONE OF THE 3 SCRUM ROLES (TEAM, PRODUCT OWNER,SCRUMMASTER) WHO HAVE MADE A COMMITMENT AND HAVE THE AUTHORITY TO FULFILL IT

### **CHICKENS =IN THE PROJECT,NO RESPONSIBILITY**

THOSE WHO ARE INTERESTED IN THE PROJECT BUT DO NOT HAVE FORMAL RESPONSIBILITIES AND ACCOUNTABILITIES

## SCRUM MASTER VERSUS PROJECT MANAGER

- They are two completely different roles
- The PM is responsible to guide the project towards goals
- The scrum master is not the main responsible nor a team leader
- He is the facilitator who has relationships with both the product owner and the team tracking the work done while team acts in autonomy,

## PRODUCT OWNER VERSUS PROJECT MANAGER

- The product owner is closer to the PM, representing the natural future evolution.
- In software there is a lower attention on projects and a higher one on **product creation**, much more beneficial for software houses.

## ARTIFACTS

Something observed in a scientific investigation, not naturally present but as a result of the investigative procedure"

EXAMPLES:

- the Product Backlog
- the Sprint Backlog
- the Product Increment AS INCREMENT OF SHIPPABLE FUNCTIONALITY

## PRODUCT BACKLOG

LIST OF REQUIREMENTS (RESPONSIBLE PRODUCT OWNER)

NEVER COMPLETE:

INITIAL ESTIMATE OF REQUIREMENTS AND EVOLUTION WITH THE PRODUCT IN

**A DYNAMIC WAY**

## PRODUCT BACKLOG TEMPLATE



### PRODUCT BACKLOG

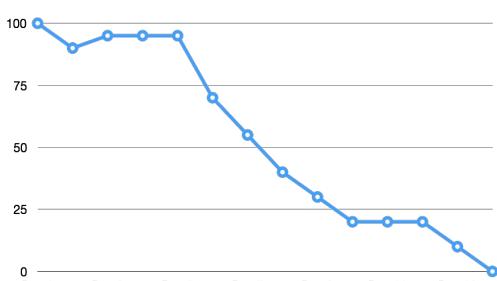
User Story ID	User Story	Estimate (size)	Priority	Sprint	Task owner	Estimated effort
US001	As a call centre agent I need to be able to see the caller's previous tickets in their contact record.	Small	5	2	J Smith	16
US002	A a customer I need to be able to login to my account from any page on the website.	Large	4	4	F Dole	48
US003	As a customer I need to be able to look up my address using my postcode.	Medium	4	2	P Murphy	24

## Burndown chart

Graphic representation of how quickly the team is working through a customer's requirements

It shows the total effort against the amount of work for each iteration

## Burndown chart



## SPRINT BACKLOG

DEFINITION OF TASKS FOR TURNING THE PRODUCT BACKLOG OF A SPECIFIC SPRINT IN AN INCREMENT OF POTENTIALLY SHIPPABLE PRODUCT FUNCTIONALITY

## DONE INCREMENT

INCREMENT OF SHIPPABLE PRODUCT FUNCTIONALITY REQUIRED IN EVERY SPRINT

THE PRODUCT OWNER MIGHT CHOOSE TO IMPLEMENT AT ONCE THAT FUNCTIONALITY SO IT REQUIRES A THOROUGH TEST WITH A STRUCTURED, WRITTEN, DOCUMENTED CODE

## PRODUCT INCREMENT

GENERALLY AFTER THE PROVEN TESTS PERFORMED

**4 main sprint events, each respecting a deadline stated at the beginning**

- 1 definition of a simple process structure**
- 2 promotion of collaboration and sharing**
- 3 making activities advancement transparent**
- 4 reduction or even removal of not planned meetings**

## Events

- Sprint Planning**
- Daily Scrum**
- Sprint Review**
- Sprint Retrospective**

## SCALING PROJECTS USING SCRUM

Many projects require more effort than a single SCRUM TEAM can provide

So MULTIPLE TEAMS can be employed working in parallel with proper coordination

Projects exist of 1000 people with teams of 100 people each in multiple locations!

## SCRUM SCALING

**STAGING PROCESS=definition and prioritization of non functional requirements:**

- 1-Put in place an appropriate infrastructure
- 2-Devise and implement a synchronization mechanism
- 3-Develope a technical architecture for a proper work division among the teams

## WHY SCRUM WORKS, COMPARED TO WATERFALL STRUCTURES

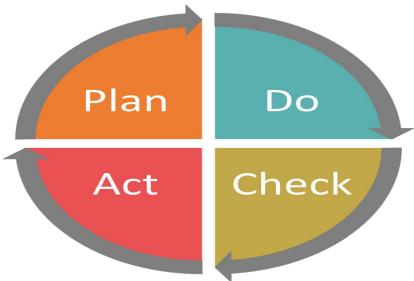
- WATERFALL IS CENTRAL CONTROL STRUCTURE
- AS COMPLEXITY INCREASES CENTRAL CONTROL BREAKS DOWN
- SO COMPANIES DECENTRALIZE, LEAVING CONTROL TO INDEPENDENT AGENTS

## SCRUM TRAVELS THE DELEGATION PATH TO THOSE CLOSE TO THE WORK

## WHY SCRUM WORKS

- 1-SCRUM SHORTENS THE FEEDBACK LOOP BETWEEN
    - CUSTOMER AND DEVELOPER,
    - WISH LIST AND IMPLEMENTATION,
    - INVESTMENT AND ROI
  - 2-DEALING WITH A CHANGE OR WITH A NEVER ENDING EVOLUTION
- LEARNING THROUGH SHORT CYCLES OF DISCOVERY IS THE PROBLEM SOLVING APPROACH**

## DEMING CYCLE



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5

49

## WHY SCRUM WORKS, COMPARED TO WATERFALL APPROACH

ALL PROCESS IMPROVEMENT PROGRAMS USE THE **DEMING CYCLE** TO

- EXPLORE A PROBLEM,
- TRY A SOLUTION,
- CHECK RESULTS,
- ADOPT PROVEN GAINS

**THIS WORKS MUCH BETTER THAN FRONT-END PREDICTIVE APPROACHES IN SOFTWARE AND VERY INNOVATIVE PROJECTS**

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5

50

## SCRUM FOCUSES ON DELIVERING PRIORITIES

SCRUM DOES NOT FOCUS ON DELIVERING JUST ANY INCREMENT OF BUSINESS VALUE

SCRUM FOCUSES ON DELIVERING THE HIGHEST PRIORITY BUSINESS VALUE AS DEFINED BY THE CUSTOMER

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5

51

## MAGIC BY SCRUM

- SCRUM UNLEASHES THE BRAINPOWER OF MANY MINDS ON A PROBLEM
- SCRUM TURNS SMALL TEAMS INTO MANAGERS OF THEIR OWN FATE

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52

## SCRUM WORKS...

SCRUM WORKS AS ITS PHILOSOPHY EMPOWERS TEAMS

SCRUM WORKS AS ITS PHILOSOPHY SATISFIES CUSTOMERS

SCRUM WORKS AS ITS MANAGERIAL CULTURE MAKE OTHERS HELPED

SCRUM WORKS AS ITS TECHNICAL TOOLS MAKE FACT-BASED DECISIONS

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5

53

## SCRUM exercise

Place a check mark in the proper column for the team.the owner,the scrummaster

to indicate

ITEM	DEVELOPMENT TEAM	PRODUCT OWNER	SCRUMMASTER
Estimates			
Backlog priorities			
Agile coaching			
Work coordination			
Definition of «done»			
Process adherence			
Technical			

54

## SCRUM QUESTIONS for THE EXAM

1-As Scrummaster you assess that the competitive market has shifted and the product the team is developing is no longer viable

**What should you do?**

2-The definition of «done» is created with the input of everyone except the:

A-development team;B-product owner;C-scrummaster;D-process owner

3-Which of these is one of the planned opportunities for inspection& adaptation?

A-Velocity review meeting,B-Risk meeting,C-Daily scrum;D-

55

## THANKS!

NEXT LESSON IS N.5:

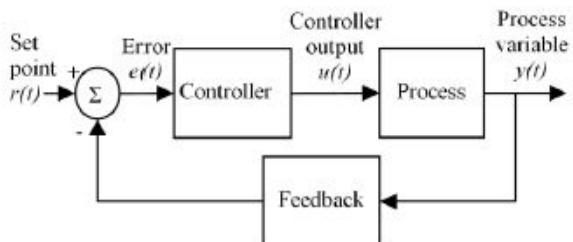
LEAN  
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56

## LOOPS AND CONTROLS



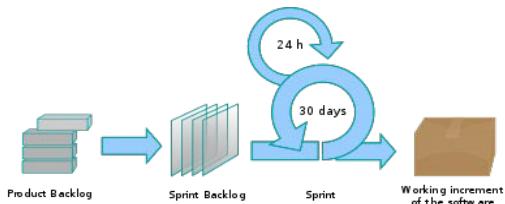
Automatic control is the application of control theory for processes regulation

A controller compares a measured value of a process with a desired set value. It processes the resulting error signal to change some input to the process, in such a way that the process stays at its set point despite disturbances.

1

2

## ANALOGY WITH SCRUM



Place a check mark in the proper column for the team.the owner,the scrummaster

ITEM	DEVELOPMENT TEAM	PRODUCT OWNER	SCRUMMASTER
Estimates			
Backlog priorities			
Agile coaching			
Work coordination			
Definition of «done»			
Process adherence			
Technical			

3

4

## SCRUM questions from last lesson

1-As Scrummaster you assess that the competitive market has shifted and the product the team is developing is no longer viable

### **What should you do?**

2-The definition of «done» is created with the input of everyone except the:

A-development team;B-product owner;C-scrummaster;D-process owner

3-Which of these is one of the planned opportunities for inspection& adaptation?

A-Velocity review meeting;B-Risk meeting;C-Daily scrum;D-

## SCRUM (~~EASY TO UNDERSTAND, HARD TO MASTER~~)

## SCRUM solved exercise from last lesson

Place a check mark in the proper column for the team.the owner,the scrummaster

ITEM	DEVELOPMENT TEAM	PRODUCT OWNER	SCRUMMASTER
Estimates	X		
Backlog priorities		X	
Agile coaching			X
Work coordination	X		
Definition of «done»	X	X	X
Process adherence			X
Technical	X		

5

## SCRUM (~~EASY TO UNDERSTAND, HARD TO MASTER~~)

## SCRUM answers from last lesson

1-As Scrummaster you assess that the competitive market has shifted and the product the team is developing is no longer viable

### **What should you do?**

2-The definition of «done» is created with the input of everyone except the:

A-development team;B-product owner;C-scrummaster;D-process owner

3-Which of these is one of the planned opportunities for inspection& adaptation?

A-Velocity review meeting;B-Risk meeting;C-Daily scrum;D-  
Retrospective meeting

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

## Project Management for IT Projects: part 2 **INNOVATIVE PROJECTS**

LESSON 5-April 23-2025

**LEAN**

Mario Salano  
April - May 2025

8

## COURSE AGENDA (PART 2: INNOVATIVE PROJECTS)

1. INNOVATION AND METHODOLOGIES
2. AGILE CONCEPTS
3. AGILE METHODOLOGIES OVERVIEW WITHOUT SCRUM
4. SCRUM
- 5. LEAN**
6. DESIGN THINKING
7. VALUE DRIVEN DELIVERY
8. STAKEHOLDERS, TEAMS, ADAPTIVE PLANNING
9. CASE STUDIES
10. EXERCISES
11. CONTINUOUS IMPROVEMENT
12. REVIEW
13. CONCLUSION

9

## WE ARE IN THE DIGITAL TRANSFORMATION ERA

In light of digital transformation many firms try to increase the **agility** of their innovation processes.

**AGILITY IS THE ABILITY TO MOVE AND TO THINK QUICKLY**

10

## LEAN

STRICTLY SPEAKING LEAN IS NOT AN AGILE METHODOLOGY AS IT BEGAN AS A MANUFACTURING APPROACH

IT ORIGINATED FROM TOYOTA PRODUCTION SYSTEM, DEVELOPED TO IMPROVE HENRY FORD'S CARS MASS PRODUCTION SYSTEM

THEN LEAN WAS APPLIED TO SOFTWARE DEVELOPMENT AND ALSO ADAPTED TO OTHER KNOWLEDGE WORKS

11

## DIGITAL TRANSFORMATION ERA

Firms particularly rely on the lean approach to reduce some of the deficits of established **innovation processes**

12

## LEAN DEVELOPMENT

LEAN IN AN AGILE CONTEXT MEANS A SUBSET OF LEAN NAMED **LEAN PRODUCT DEVELOPMENT**

**Radical approach to innovative initiatives (new companies/projects)**

It penetrates the fog of uncertainty and identifies a path towards a sustainable business, reducing drastically time and costs and therefore the probability of failure.

13

## LEAN START UP METHOD

It proposes a continuous design-check process, with extensive use of the web, aimed at adapting the product step by step to the wishes of **customers** while keeping financial outlays under control.

14

## LEAN WITHIN THE AGILE MINDSET

- Customer on the center
- Change of ideas as a consequence of feedbacks.
- Transforming the idea into a business model

15

## BENEFITS

- more innovation,
- less expense
- less waste of time
- greater probability of success
- no vanity indicator, i.e. false progress signals often used to evaluate the success of an initiative

16

## SOME DEFINITIONS BEFORE GOING ON

- **Business model:** describes the logic according to which an organization creates, distributes and collects value. It is the set of organizational and strategic solutions through which the company exists and is successful
- **Business case:** describes the project justification and includes costs, risks and timelines that serve to verify the ongoing feasibility of the project
- **Minimum viable product:** it has enough features to validate a product idea early in the product development cycle.  
In software teams it helps receive user feedback as quickly as possible to improve

17

## LEAN METHODOLOGY FOR PM

Development of an idea and its transformation into a business

The goal is a quick check of the potential of an idea on the market and the shortening development times through a waste reduction

**Minimum Viable Product**, going to the next release only after an analysis of customers' feedbacks

18

## LEAN METHODOLOGY FOR PROJECT MANAGEMENT

Eric Ries defined this methodology in his famous 2011 book "Lean Startup"

*«The Lean Startup is a scientific approach to manage projects and startups and getting a desired product to customers' hands faster»*

**VISION: DESTINATION IN MIND, CREATING A PROSPEROUS BUSINESS  
STRATEGY: BUSINESS MODEL, ROADMAP, COMPETITORS & CLIENTS  
PRODUCT: THE FINAL RESULT**



19

20

## LEAN METHODOLOGY FOR PROJECT MANAGEMENT

The Lean Startup method teaches:

- how to drive a startup
- how to steer
- when to turn
- when to persevere
- When to grow a business with maximum acceleration.

IT IS A PRINCIPLED APPROACH TO NEW PRODUCT DEVELOPMENT

## GOALS OF LEAN METHODOLOGY FOR PROJECT MANAGEMENT

- Quick check of the potential of an idea on the market
- Shorten its development cycles by reducing waste.

For this purpose, the Lean Start-Up plans to proceed with cyclical and successive experiments of initial product versions to

### the Minimum Viable Products

moving to the next release only when customer feedback has been analyzed.

21

22

## FAILURES OF NEW START UPS AND NEW PRODUCTS

- According to Forbes, globally 90% of start-ups fail
- The first reason is  
"They produce products that nobody wants"

## LEAN SOFTWARE DEVELOPMENT

- ADAPTATION OF LEAN MANUFACTURING TO SOFTWARE DEVELOPMENT DOMAIN
- IT IS BASED ON A SET OF PRINCIPLES AND PRACTICES FOR ACHIEVING QUALITY, SPEED, CUSTOMER ALIGNMENT

23

24

## LEAN PRODUCT DEVELOPMENT

# 3 HIGH LEVEL PRINCIPLES

# 7 CORE CONCEPTS

25

## LEAN PRODUCT DEVELOPMENT

### 3 HIGH LEVEL PRINCIPLES

#### 1-USE OF VISUAL MANAGEMENT TOOLS

#### 2-IDENTIFICATION OF CUSTOMER-DEFINED VALUE

#### 3-BUILDING IN LEARNING AND CONTINUOUS IMPROVEMENT

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

#### 1-USE OF VISUAL MANAGEMENT

A form of communication used to give a **snapshot** of operations to translate shop floor processes into easy-to-understand **visual overviews**.

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

#### 1-BENEFITS BY USING VISUAL MANAGEMENT TOOLS

- Share Information with Others.
- **Streamline Project Management.**
- Enforce the Standards.
- React to Irregularities When They Happen.
- Prevent Irregularities from Occurring.

28

#### 2-IDENTIFICATION OF CUSTOMER-DEFINED VALUE

What a product is worth to a customer versus possible alternatives.  
Worth: whether the customer feels he get benefits and services over what he paid.  
**benefits <-> cost**

29

#### 3-BUILDING IN LEARNING AND CONTINUOUS IMPROVEMENT

1. Learning. Do you read any blogs, follow people in your industry on social media, or experiment with different ways of solving problems?
2. Sharing. Once you've found a potential improvement, share it with team.
3. Implementing.

30

## 3rd LESSON (part 1):8 MAIN METHODOLOGIES

## LEAN PRODUCT DEVELOPMENT (3)

#### 7 CORE CONCEPTS

1. WASTE ELIMINATION
2. TEAM EMPOWERMENT
3. FAST DELIVERY
4. WHOLE OPTIMIZATION
5. QUALITY IN BUILDING
6. DECISION DEFERRING
7. LEARNING AMPLIFICATION

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

#### CORE CONCEPT 1-WASTE ELIMINATION

The absolute first question at the basis of lean start up method is:

**"which efforts create value and which result in waste?"**

**IT DEFINES VALUE AS WHAT BENEFITS THE CUSTOMER WHILE ALL THE REST IS WASTE**

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

## WASTE in LEAN PRODUCT DEVELOPMENT

PRIMARY DRIVER FOR THE LEAN APPROCH IN SOFTWARE:

WASTE	DESCRIPTION	EXAMPLE
PARTIALLY DONE WORK	STARTED, NOT COMPLETE	WAITING FOR TESTING
EXTRA PROCESSES	EXTRA NOT ADDING VALUE	UNUSUED DOCUMENTATION
EXTRA FEATURES	NICE TO HAVE FEATURES	GOLD PLATING
TASK SWITCHING	MULTITASKING IN DIFFERENT PROJECTS	PEOPLE ASSIGNED TO MULTIPLE PROJECTS
WAITING	DELAYS WAITING FOR APPROVALS AND REVIEWS	WAITING FOR APPROVALS
MOTION	MOVING INFO FROM A GROUP TO	DISTRIBUTUED TEAMS

## LEAN PRODUCT DEVELOPMENT EXERCISE

1. Queuing for elevator
2. Saving documents in old format for compatibility
3. Creating notices in Spanish to comply with company standards even if nobody at the location speaks Spanish
4. Rebooting a computer after a program crash
5. Submitting stationery and letterhead orders for approval

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

## CORE CONCEPT 2: TEAM EMPOWERMENT

- In an empowered team, each teammate has a voice in group decisions.
- An organization structured around empowered teams has a flat hierarchy and a high proportion of well-educated, highly trusted employees.

35

## CORE CONCEPT 2: TEAM EMPOWERMENT

- 4 elements:
1. potency
  2. meaningfulness
  3. autonomy
  4. impact

36

## CORE CONCEPT 2: TEAM EMPOWERMENT

- Empowered teams are usually project-based and cross-discipline;
- they may utilize the skills of a project manager to help coordinate
- Rules are not imposed upon them from above, but:  
-they are far more effective when they establish strict rules within the team regarding how decisions are made and communicated, and who is responsible for implementing them.

37

## CORE CONCEPT 3: FAST DELIVERY

- The Lean way of delivering quickly  
**is not working longer hours**
- Lean development is based on this concept:  
**Build a simple solution, put it in front of customers, enhance incrementally based on customer feedback.**

38

## CORE CONCEPT 4: WHOLE OPTIMIZATION

### VALUE STREAM

Caring about the flow of value through the entire process from beginning to end

39

## CORE CONCEPT 5: QUALITY IN BUILDING

- Adoption of the Lean continuous improvement values.
- the engine powering the Lean quality management system is **Continuous Improvement**
- **Proactive** Lean quality improvement means lower costs and higher quality from **the start**.

40

## CORE CONCEPT 6: DECISION DEFERRING

- Another practice used by agile teams that comes from Lean.
- Deferring commitment means:  
waiting until the last responsible moment to make a decision.
- Defer critical decisions.

41

## CORE CONCEPT 7: LEARNING AMPLIFICATION

Learning is the essential unit of measure of progress made  
Not necessary efforts to learn what customers want can be removed

42

## LEARNING AMPLIFICATION

- The question isn't "can we make this product"? but:
- "should this product be created with a sustainable business?"

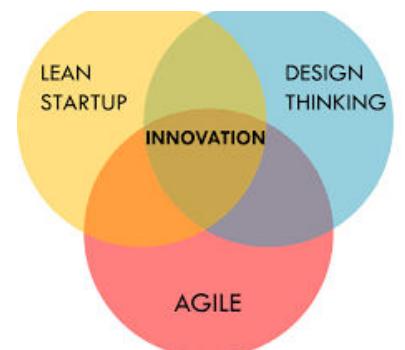
A method is needed that breaks down the business plan into its components to subject each to an empirical test

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

## DIGITAL TRANSFORMATION

### LEAN->DESIGN THINKING

Complementarity derives from the specific benefits of design thinking in the front end of the innovation process combined with the particular benefits of lean startup in the back end.



44

## TRUE OR FALSE?

- LEAN USES PRESCRIPTIVE PROCESS
- LEAN HAS RULES ABOUT WASTES
- LEAN MEANS WORKING LONGER HOURS
- SCRUM HAS MANY INSPECT CYCLES
- LEAN USES VISUAL MANAGEMENT TOOLS
- LEAN HAS ADAPT CYCLES
- IN LEAN EACH TEAMMATE HAS A VOICE IN GROUP

45

## LEAN REVIEW

LEAN WORKS AS ITS PHILOSOPHY EMPOWERS TEAMS  
LEAN WORKS AS ITS PHILOSOPHY SATISFIES CUSTOMERS  
LEAN WORKS AS ITS MANAGERIAL CULTURE MAKE WASTE PROHIBITED

46

## IMPORTANT CONCEPTS IN THESE 5 LESSONS

- |                              |   |
|------------------------------|---|
| 1. INNOVATION                | 1. implementation of ideas of new products            |
| 2. AGILITY                   | 2. methodology pushing finished product delivery      |
| 3. VALUE DRIVEN DELIVERY     | 3. process combining value-creating and risk-reducing |
| 4. DELIVERABLE               | 4. result of shippable, objective-focused work        |
| 5. EMPIRICAL PROCESS CONTROL | 5. approach whereby the team learns from mistakes.    |
| 6. PRODUCT OWNER             | 6. developer of product backlog items                 |
| 7. TEAM                      | 7. groups of people working together for shared goals |
| 8. SCRUM-MASTER              | 8. guardian of scrum framework                        |
| 9. SPRINT                    | 9. short period for a scrum team to complete a work   |
| 10. DONE                     | 10. shared completion of a product Increment,         |
| 11. LEAN PROCESS             | 11. process for doing products faster with less waste |
| 12. WASTE                    | 12. anything that adds no real value to the project.  |

47

## WASTE

ANY ACTION OR STEP IN A PROCESS THAT DOES NOT ADD VALUE TO THE CUSTOMER.

ANY PROCESS THAT THE CUSTOMER DOES NOT WANT TO PAY FOR.

48

## STATUS OF THE COURSE:&REVIEW OF TODAY LESSON 5: AGILE METHODOLOGIES :LEAN

### LESSONS 1,2,3,4

- INNOVATION
- METHODOLOGY
- REQUIREMENTS
- ITERATION
- VALUE DRIVEN
- SPECIFIC AGILE METHODOLOGIES
- SCRUM
- LEAN



### NEXT LESSON 6 DESIGN THINKING

49

THANKS! NEXT 6th LESSON:DESIGN THINKING

- TIPS FOR THE EXAM:
- POSSIBLE QUESTIONS:
- WHAT IS WASTE IN THE LEAN ENVIRONMENT?

50

## Project Management for IT Projects: part 2 **INNOVATIVE PROJECTS** LESSON 6-MAY 2025 **DESIGN THINKING**

Mario Salano  
April - May 2025

1

## Course agenda (part 2:INNOVATIVE PROJECTS)

1. INNOVATION AND METHODOLOGIES
2. AGILE CONCEPTS
3. AGILE METHODOLOGIES OVERVIEW WITHOUT SCRUM
4. SCRUM
5. LEAN
6. DESIGN THINKING
7. VALUE DRIVEN DELIVERY
8. STAKEHOLDERS,TEAMS,ADAPTIVE PLANNING
9. CASE STUDIES
10. EXERCISES
11. CONTINUOUS IMPROVEMENT AND REVIEW

2

## ACKNOWLEDGEMENTS

These slides are based on

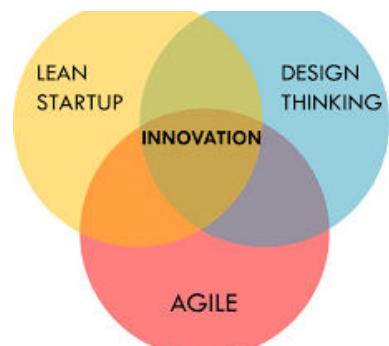
- MANUALE DI DESIGN THINKING  
By Michael Lewrick, Patrick Link, Larry Leifer
- DESIGN THINKING METHODOLOGY BOOK  
By Emrah Yayici

3

## DIGITAL TRANSFORM ATION

### LEAN-AGILE-DESIGN THINKING

Complementarity derives from the specific benefits of design thinking in the front end of the innovation process combined with the particular benefits of lean startup and agile in the back end.



4

## WHAT IS DESIGN THINKING?

Design thinking is a tool for problem-solving and innovation.

It is a human-centered framework

It empowers businesses to craft solutions

It enables managers to be adaptable, creative, effective

## DESIGN THINKING DISTINCTIVE CHARACTERS

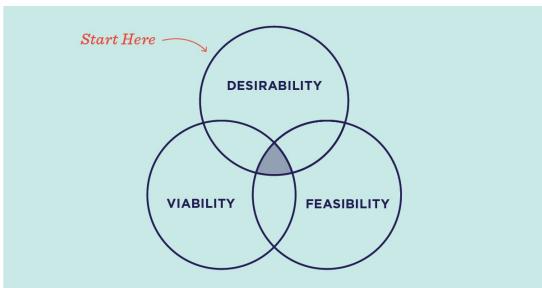
Mindset is everything:

- reflection during action
- re-contextualization of problems as information emerges
- ability to make ideas tangible through prototypes

5

6

## How Does Design Thinking Work?



7

## How Does Design Thinking Work?

- Desirability: what makes sense to people and for people
- Feasibility: what is technically possible within the foreseeable future
- Viability: what is likely to become part of a sustainable business model

8

## MOTIVATION FOR DESIGN THINKING

ORGANIZATIONS ADOPT DESIGN THINKING,  
A HUMAN-CENTERED PROCESS,  
WHEN THEY WANT TO ANSWER ALL THE ACTORS  
OF THE **CHANGE**

9

## DESIGN THINKING: MORE A MINDSET THAN A METHOD

FIL ROUGE OF TODAY LESSON:

ORGANIZATIONS ALWAYS LOOK FOR A **MAGICAL WAY TO**

1. CREATE NEW IDEAS/PRODUCTS WITH A LARGE REQUEST
2. OVERCOME BUSINESS, SOCIAL, TECHNOLOGICAL ISSUES

10

## PRODUCTS CREATION&PROBLEMS OVERCOME

A NEW WAY OF THINKING IS REQUIRED BECAUSE THE WORLD IS **CHANGING** WITH AN INCREASED AMOUNT OF **COMPLEXITY AND UNCERTAINTY**

DESIGN THINKING HAS BECOME THE MOST DISTINCTIVE WAY TO DO THIS

11

## DIGITAL ERA

Design Thinking is attracting tremendous interest as **an extremely important tool** for initiating digital transformation

12

## DESIGN THINKING: THE LANGUAGE OF INNOVATION

IT SHOULD BE LEARNT BY ALL THOSE WHO ASPIRE TO BUILD THE FUTURE

IT MAKES UNDERSTANDABLE CHOICES BY INTEGRATION OF ALL THE POSSIBLE CONTRIBUTIONS TOWARDS THE SATISFACTION OF THE WISHES

13

## FUNDAMENTAL CONCEPT

**DESIGN THINKING PROVIDES A WAY OF THINKING BASED ON PEOPLE WISHES**

14

## POINT OF VIEW TO BE CHANGED

From "what is"✉ to "what could be"

Starting with "***we must understand***" and arriving at "***we must imagine***"

15

## DESIGN THINKING MINDSET IN THE VUCA ERA

Volatility, Uncertainty, Complexity, Ambiguity

COMPANIES LOOK FOR BRILLIANT MECHANISMS TO MEET 2 GOALS:

- 1-GENERATION OF WIDELY and STRONGLY LIKED PRODUCTS
- 2-SOLVING COMPLEX PROBLEMS

INNOVATION IS POSSIBLE VIA «**PROJECTIZATION**»

THESE MECHANISMS CAN ONLY COME

- BY NEW IDEAS
- AND NEW BUSINESS MODELS

## DESIGN THINKING

Design thinking is a tool that applies to improve project and design management

It was born officially in the 2000 in Stanford-California with focus on people by promoting:

**integration of analysis and creativity**

## VALUE

VALUE IS NOT IN THE SOLUTIONS  
BUT

IN THE IDENTIFICATION OF

**THE CORRECT PROBLEM**

18

## DESIGN THINKING&PROBLEM DEFINITION

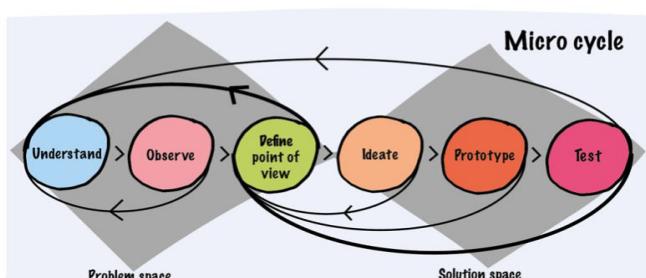
- According to design thinking, **if problem definition is** not performed well, it affects all the consequent path
- A NEW MINDSET IS NEEDED IN THIS SENSE IN AN ORGANIZATION

## 4 MAIN FEATURES

- Hypothesys-driven process based on a solution through new ideas
- Grounded on testing alternative solutions
- Problem definition must be performed well to avoid affecting all the path
  - Human centered methodology helps organizations to create solutions around **their users**

**A NEW MINDSET IS NEEDED IN THIS SENSE IN AN ORGANIZATION**

## DT: CREATE INNOVATION THROUGH 6 PHASES



## DT: A DISTINCTIVE WAY TO CREATE INNOVATION THROUGH 6+1PHASES

1. UNDERSTANDDEFINITION of THE CHALLENGE
2. OBSERVERESEARCH DATA (look for requirements)
3. POINT OF VIEW DEFINITIONinterpretation
4. IDEATION✉ (sistematicity)
5. PROTOTYPING✉ (tangibility)
6. TEST✉ (end and start of this process)

**+1:REFLECT**

## 1-UNDERSTAND:DEFINITION of THE CHALLENGE

- THE KEY SUCCESS FACTOR IN THE DEFINITION PHASE IS SPENDING TIME TO FRAME THE CHALLENGE AS A SPECIFIC,PURPOSE LED,ACHIEVABLE, CLEAR STATEMENT
- STRONG CONCRETIZATION SKILLS ARE REQUESTED (PROPER TECHNIQUES EXIST)

«If I had an hour to solve a problem, I would spend 55 minutes thinking about the problem and 5 minutes thinking about solutions»

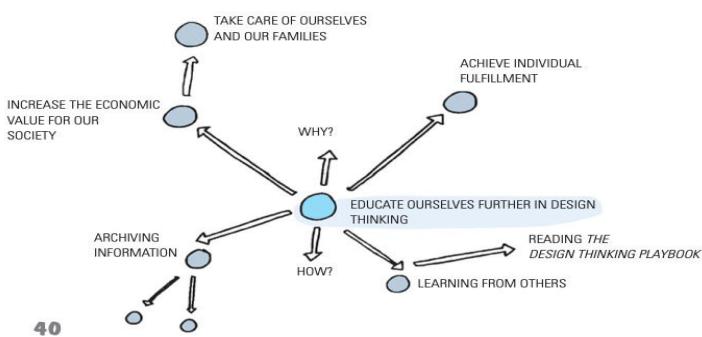
**WHO SAID THIS?**

**ALBERT EINSTEIN !**

**"preparation has great value to problem solving"**

24

## 1A-UNDERSTAND:DEFINITION of THE CHALLENGE



## 1A-UNDERSTAND:DEFINITION of THE CHALLENGE

**Along with problem statement it is important to understand the general context:**  
through 6 questions:

1. What are the features, type, size of the target group?
2. Why the user is looking for a solution?
3. What is the proposal of the user for the solution?
4. When and how long the result is necessary?
5. Where will the result be used? (environment, place, media, country)
6. How is the solution of the user implemented? (budget, capability, business model, go to market)

26

## 2-OBSERVE: RESEARCH DATA (look for requirements)

**Be experienced and understand users' needs well**

**It is important to document and visualize what you discover so you can share it with others later**

## 3- POINT OF VIEW DEFINITION■INTERPRETATION AND INSIGHTS

- to draw on everything that has been discovered,
- to interpret it
- to ponder it.

All group members must be encouraged to talk about their experience.

The goal is to define a common knowledge base

The best way is to tell lived stories, show images and people's reactions

27

28

## 4. IDEATION: CREATIVITY INCREASE (FOCAL POINT)

- NORMALLY THIS IS LIMITED TO BRAINSTORMING OR CREATING SKETCHES
- GOAL: TO DEVELOP AS MANY CONCEPTS AS POSSIBLE AND VISUALIZE THEM.
- THE PRIMARY GOAL IS TO INCREASE CREATIVITY STEP BY STEP BY ITERATION

## 4 A:STRUCTURING AND CHOOSING IDEAS

- Ideas need to be grouped and chosen systematically
- Problems and situations must be communicated

29

30

## 4 B:STRUCTURING AND CHOOSING IDEAS

- Maps must be created:
- 1. **Mental:** a graphical representation of thought with the aim to implement the visual memory and therefore the memorization of concepts
- 2. **Conceptual:** on a standard template to simplify approaches to solutions
- 3. **Systemic:** a defined method in software to build a classification scheme
- 4. **Giga Maps:** to allow the team to get a quick summary and a knowledge scenario

31

## 5- PROTOTYPING: TANGIBILITY

- Ideas must be tangible as soon as possible by testing them with potential users to receive important feedback to improve

## LOVE IT, CHANGE IT or LET IT LOSE IT

32

## 6 TEST PRODUCT EVOLUTION

- Phase that comes after each prototype developed or after each draft sketch
- In addition to traditional tests, digital tests can now be performed
- From this stage we receive feedback for which we must learn from these ideas and develop them further until the idea pleases with the alternative of discarding or changing it.

33

## +1: REFLECT

- Before starting a new cycle of the iterative process, it is very advisable to reflect on the direction taken
- The topics can be addressed in a feedback cycle

**"I like it, I would like it"**

34

## TO TRANSFORM ORGANIZATIONS

- DESIGN:
  1. SPACE
  2. WORK ENVIRONMENT
  3. A CREATIVE ATMOSPHERE, POSSIBLY WITH INTERDISCIPLINARY TEAMS
  4. VISUALIZE IDEAS AND STORIES
  5. MANAGE FACILITATION
  6. IMPLEMENT STRATEGIC FORESIGHT:

35

**GOAL: TO DRAW USEFUL INSIGHTS FOR STRATEGIC PLANNING, POLICY-MAKING AND PREPAREDNESS.**

### ANTICIPATING :

- TRENDS
- RISKS
- EMERGING ISSUES
- THEIR POTENTIAL IMPLICATIONS
- THEIR POTENTIAL OPPORTUNITIES

36

## DESIGN THE FUTURE

MANY THINGS MUST BE UNDERSTOOD AS SYSTEMS:  
*interactions of components, each satisfying a function, in a larger unit and in its environment*

- products
- services
- business models
- Processes
- our family
- the organization we work for

37

## DESIGN THE FUTURE: Design criteria for a digitized world

1. Accept that the customer of the future might be a robot
2. Design interactions for the coexistence between machines and human beings
3. Exploit the concept that human beings and robots are more efficient in team
4. Design all needed areas for human being and robot: data, knowledge, emotions
5. Focus on trust: trust increases when the interlocutor behaves as expected
6. Define a strategy based on the concept that robots don't learn the moral

38

Just a last tip:"The Artful Thinking approach"

- It encourages active looking and learning through the practice of short, simple thinking routines.
- These routines help students to focus on specific aspects of an artwork and to organize their observations and ideas.

39

## WORLD SEEN WITH NEW EYES

DEALING WITH ARTS MAKES SOMEONE SKILLED IN

- CREATIVITY
- OBSERVATION
- EMPATHY
- CRITICAL THINKING
- CREATION OF INNOVATIVE BUSINESS AND TECHNOLOGICAL SOLUTIONS

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

## MAGIC STEP LOOKED FOR

COMPANIES LOOK FOR TO UNLOCK CREATIVITY AND INNOVATION:

*the way is the application of*

- *Artful Thinking mindset*
- *Design Thinking Methodology*

41

## DIGITAL TRANSFORMATION: HOW?

1. TAKE CARE OF USERS' NEEDS
2. ACCEPT THAT NEW TECHNOLOGIES WILL GO ON BY BIG REVOLUTIONS
3. LEVERAGE ON NEW MARKET OPPORTUNITIES
4. OVERCOME THE «DIGITAL DIVIDE»
5. CREATE BUSINESS ECOSYSTEMS
6. DIGITAL TRANSFORMATION IS ALSO AN ORGANIZATION TRANTITION REQUIRING AN AGILE AND INTERDISCIPLINARY COLLABORATION
7. ESTABLISH A NEW MINDSET IN YOUR ORGANIZATION TO FACE CHALLENGES

42

## TIPS TO DESIGN THE FUTURE

1. DATA SCIENCE
2. CUSTOMER'S EXPERIENCE
3. ARTIFICIAL INTELLIGENCE
4. IDENTIFY A DIGITALIZATION CHAMPION
5. BRING INTO THE COMPANY PROPER CAPABILITIES
6. BRING **T** EMPLOYEES:UNDERSTANDING A TECHNOLOGY AND INNOVATORS

43

## TRUE OR FALSE?

- DESIGN THINKING IS A MINDSET
- DESIGN THINKING IS A METHODOLOGY ON WASTES
- PROBLEM DEFINITION IS BASIC IN DESIGN THINKING
- DESIGN THINKING USES VISUAL MANAGEMENT TOOLS
- ADOPTING DESIGN THINKING ENSURES 30 CUM LAUDE
- CREATIVITY IS FOSTERED BY DESIGN&ARTFUL THINKING

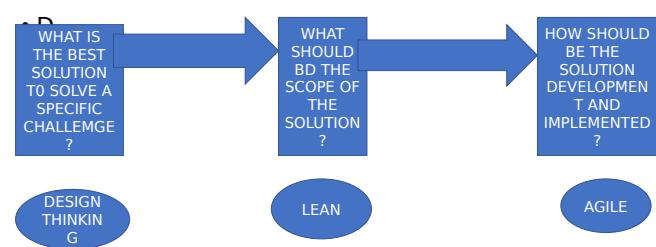
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## **DESIGN THINKING REVIEW**

- ....WORKS AS MINDSET
- ....WORKS STARTING BY PROBLEM DEFINITION
- ....WORKS WITH A PROPER METHODOLOGY LIKE SCRUM
- ....WORKS AS ITS PHILOSOPHY SATISFIES CUSTOMERS

45

## HOW TO APPLY DESIGN THINKING,LEAN,AGILE



46

## PHYSICS THEORY

- EVERYTHING IN THE UNIVERSE HAS A BIAS TO PASS FROM A WELL ORDERED STATE TO A DISORDERED ONE TO THE ENTROPY LAW
- THIS IS ALSO VALID FOR PROJECTS**
- TO PREVENT CHAOS A METHODOLOGY IS NEEDED
- PRODUCTS&SERVICES CAN BE DEVELOPED WITH EITHER A REVOLUTIONARY OR AN EVOLUTIONARY APPROACH

47

## DESIGN THINKING,LEAN,AGILE

- THE NEW SOLUTION IS DEVELOPED IN A BIG UPFRONT DESIGN PHASE AND IS FULLY IMPLEMENTED AFTER COMPLETION
- IN THE EVOLUTIONARY APPROACH THE SOLUTION IS DESIGNED,DEVELOPED,IMPLEMENTED IN AN ITERATIVE WAY

48

## ALTERNATIVE?

- NO: DES THINKING SHOULD BE SEEN AS A COMPLEMENTARY METHOD TO LEAN AND AGILE
- THESE METHODOLOGIES CAN BE APPLIED TOGETHER THROUGHOUT DEVELOPMENT LIFE CYCLE

49

APPLICATION TOGETHER THROUGHOUT DEVELOPMENT LIFE CYCLE

1. IDENTIFY THE BEST SOLUTION FOR A SPECIFIC CHALLENGE
2. DEFINE THE SCOPE OF THE SOLUTION: MINIMUM VISIBLE PRODUCT
3. DEVELOP AND IMPLEMENT THE SOLUTION IN AN ITERATIVE MANNER

50

## STATUS OF THE COURSE AFTER TODAY LESSON 6: INNOVATIVE PROJECTS:DESIGN THINKING

- LESSONS 1,2,3,4,5,6**
- INNOVATION
  - METHODOLOGY
  - REQUIREMENTS
  - ITERATION
  - LEAN START UP
  - DESIGN THINKING



## NEXT LESSON 7 VALUE DRIVEN DELIVERY

51

## IMPORTANT LEARNT CONCEPTS IN 6th LESSON

1. INNOVATION
2. AGILITY
3. VALUE DRIVEN DELIVERY
4. DELIVERABLE
5. EMPIRICAL PROCESS CONTROL
6. PRODUCT OWNER
7. TEAM
8. SCRUM-MASTER
9. SPRINT
10. DONE
11. LEAN
12. WASTE
13. CREATIVITY
14. DESIGN THINKING

- DESIGN THINKING is becoming sensitive to problems and difficulty
- DESIGN THINKING is searching for solutions and formulating hypotheses
- DESIGN THINKING is testing hypotheses, modifying and retesting them
- DESIGN THINKING is finally communication

52

THANKS! NEXT 7th LESSON:  
VALUE DRIVEN DELIVERY

- TIPS FOR THE EXAM:
- POSSIBLE QUESTIONS:
- Explain the sentence: "I like it, I would like it"
- Outline the difference between method and mindset
- comment the 3 areas: LEAN-AGILE-DESIGN THINKING

53

## NEXT VALUE DRIVEN DELIVERY Value is the benefit created by goods

1. not only related to money
2. also customer satisfaction delivers value

## END OF THE LESSON

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55

## Project Management for IT Projects: part 2 **INNOVATIVE PROJECTS** LESSON 7-MAY 2024 VALUE DRIVEN DELIVERY

Mario Salano  
April - May 2023

1

### **Course agenda (part 2:INNOVATIVE PROJECTS)**

1. INNOVATION AND METHODOLOGIES
2. AGILE CONCEPTS
3. AGILE METHODOLOGIES OVERVIEW WITHOUT SCRUM
4. SCRUM
5. LEAN
6. DESIGN THINKING
7. VALUE DRIVEN DELIVERY
8. STAKEHOLDERS,TEAMS,ADAPTIVE PLANNING
9. CASE STUDIES
10. EXERCISES
11. CONTINUOUS IMPROVEMENT AND REVIEW

2

DIFFERENCE BETWEEN WATERFALL AND AGILE

### **THE TIME WHEN PROJECT VALUE IS ENJOYED BY THE CUSTOMER**

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THE GOAL OF AGILE IS THE ASAP DELIVERY OF THE VALUE

THROUGH

**CONTINUOUS, PERIODICAL, INCREMENTAL RELEASES**

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**VALUE MUST ABSOLUTELY FRAMED WITHIN PRIORITY**

**THE DELIVERED VALUE MUST BE USED AS A PRINCIPLE OF PRIORITIZATION OF THE BACKLOG**

5

PRIORITY LINKED TO MAXIMIZATION

**THE DELIVERED VALUE MUST BE MAXIMISED**

**IMMEDIATELY.**

A STEP BEHIND: MARKETING AND VALUE

Marketing is the discipline to achieve the company goals:

**launch successful products and services SO**

The goal of marketing is the creation of **value** for customers and for the company

6

7

ONE OF THE BEST DEFINITION OF  
VALUE  
**UTILITY OR IMPORTANCE**  
IN COMPARISON WITH SOMETHING ELSE.

8

## 2 MAIN MEANINGS OF VALUE

1. VALUE FOR THE CUSTOMER=SACRIFICE  
DIFFERENCE BETWEEN WHAT HE RECEIVES AND WHAT  
HE GIVES IN COUNTERPART
2. EXCHANGE VALUE=SELLING PRICE

9

## UNAVOIDABLE POINTS OF ALL THE COMPANIES

- **VISION:** what you want to accomplish.
- **MISSION:** how you will achieve your vision.
- **STRATEGY:** way of using the mission to achieve the vision.

10

## VALUE MUST BE IN THE MISSION (HOW) OF EVERY COMPANY

IN THE MISSION OF EVERY COMPANY, FROM THE SMALLEST TO THE BIGGEST ONES, THERE SHOULD BE THE

- PLANNING
- CREATING
- EXECUTING
- COMMUNICATING
- DELIVERING

**VALUE**

11

## BUSINESS CASE

Project justification which includes  
• costs,  
• risks  
• timing  
to verify the feasibility of the project

12

## BUSINESS VALUE

CONCEPTS THAT GUIDE BUSINESS.  
BUSINESS VALUES CAN HELP  
• MAKE DECISIONS,  
• FOSTER A CULTURE OF TEAMWORK  
• CREATE A POSITIVE WORKING ENVIRONMENT.

13

## BUSINESS MODEL

COMPANY'S PLAN FOR MAKING PROFIT.  
IT IDENTIFIES  
• THE PRODUCTS OR SERVICES TO SELL  
• TARGET MARKET  
• ANY ANTICIPATED EXPENSES.

14

## RELEASE CONCEPT

- A release is the distribution of the final version of an application.
- A software release is the initial generation of a new or upgraded application.
- A release is preceded by the distribution of alpha and then beta versions of the software.
- In agile software development, a release is a deployable software package that is the culmination of several iterations.

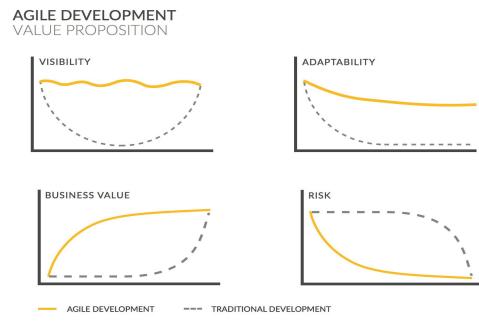
## RELEASE: ALFA AND BETA TEST

**Alpha**= software that is not thoroughly tested by the developer before it is **released** to customers

**Beta**= a software that is carried out following acceptance testing at the supplier's site immediately prior to general **release**

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## DELIVERY VALUE IS SIMPLY THE REASON TO DO PROJECTS

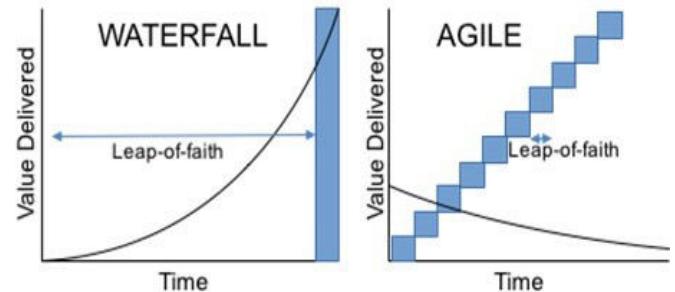


## VALUE DRIVEN DELIVERY

- Within Agile approach the effect is to provide a non constant differential value which grows progressively up the achievement of a peak.
- In opposition in the traditional approach the differential value is totally provided at the end of the project

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## VALUE DRIVEN DELIVERY



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## VALUE DRIVEN DELIVERY PRACTICES

- ASSESSING VALUE
- PRIORITIZING VALUE
- DELIVERING INCREMENTALLY
- AGILE-CONTRACTING
- VALIDATING VALUE

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## DELIVER VALUE EARLY (EAT YOUR DESSERT FIRST!)

### WHY?

1. LIFE IS SHORT...

2. STAKEHOLDERS PLAY A HUGE ROLE IN SUCCESS

**«decide to prioritize value-adding activities and risk-reducing efforts»**

**«remember that wasteful activities reduce value (overheads...)»**

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## ASSESSING VALUE: financial metrics

ASSESS THE VALUE OF A PROJECT BEFORE APPROVAL

ESTIMATE ROI, NPV (same for Agile and Traditional Approaches)

ROI=RETURN ON INVESTMENT  
NPV=NET PRESENT VALUE:

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## ROI=RETURN ON INVESTMENT

PROFITABILITY OF AN INVESTMENT BY CALCULATING THE RATIO OF THE BENEFITS RECEIVED BY AN INVESTMENT TO THE MONEY INVESTED IN IT, EXPRESSED AS A PERCENTAGE

ROI IS A VERY HELPFUL METRIC BUT IT MIGHT NOT TELL US THE REAL VALUE THAT A PROJECT WILL DELIVER

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## NPV

HOW MUCH MONEY A PROJECT WILL GAIN OR LOSE IN TERMS OF TODAY'S FUNDS.

24

## ASSESSING VALUE

- PRESENT VALUE IS THE WAY OF CALCULATING THE VALUE OF A FUTURE AMOUNT IN TODAY'S TERMS, GIVEN AN ASSUMED INTEREST RATE AND INFLATION RATE

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## ROI IS A VERY HELPFUL METRIC BUT

...

A PROJECT MIGHT RUN FROM JANUARY TO JUNE AND THEN DELIVER A SOLUTION THAT WILL GENERATE SOME RETURN.

THIS IS NOT ENOUGH TO SAY THAT AT A CERTAIN MOMENT WE WILL HAVE RECEIVED AS MUCH MONEY AS WE HAVE SPENT BECAUSE THERE IS A TERRIBLE ENEMY CALLED

## INFLATION

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## EVM

MATH STILL WORKS IN THE SAME WAY AS IT DOES ON TRADITIONAL PROJECT  
BUT  
IT IS NECESSARY TO BE CAREFUL WHAT WE ARE MEASURING AGAINST

EARNED VALUE COMPARES ACTUAL PROJECT PERFORMANCE TO PLANNED PERFORMANCE IN A PARTICULAR POINT IN TIME

IN AGILE PROJECTS THE INITIAL PLAN WILL CHANGE SO THE BASIS FOR EFFECTIVE EVM IS ERODED AS THE PLAN EVOLVES

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## ASSESSING VALUE

- ANOTHER CAUTION ABOUT EVM IN AGILE IS THAT IT DOES NOT TRULY INDICATE WHETHER THE PROJECT IS REALLY DELIVERING VALUE
  - WE MIGHT BE ON TIME AND ON BUDGET WITH AN UNHAPPY CLIENT
- BUT**
- EVM IS A LEADING INDICATOR, LOOKING FORWARD IN THE ATTEMPT TO PREDICT DATES AND COSTS**

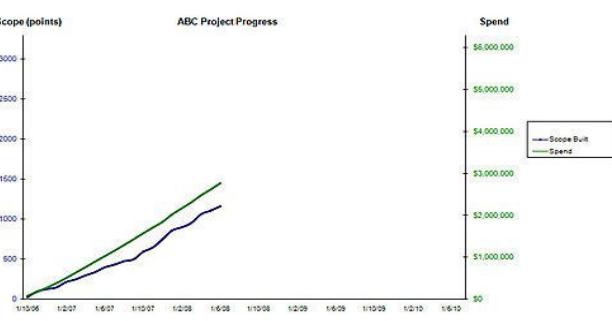
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## ASSESSING VALUE BY AN AGILE EV TOOL

- WE CAN HAVE
- A SPENDING LINE, TRACKED AGAINST A MONETARY SCALE
  - A LESS LINEAR LINE FOR COMPLETED SCOPE (FEATURES BUILT TO DATE)
- THE GRADIENT OF THE SECOND LINE IS THE TEAM SPEED (GOOD WHEN STEEP)
- BY ADDING A BACKGROUND SHOWING FUNCTIONAL AREAS AND PROJECTIONS THE ACTUAL PROGRESS COMPARED TO PLANNED PERFORMANCES CAN BE SEEN

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## ASSESSING VALUE BY AN AGILE EV TOOL



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## KEY PERFORMANCE INDICATORS

- SPONSORS OF AGILE PROJECTS WANT TO KNOW THE SAME THINGS OF SPONSORS OF TRADITIONAL PROJECTS:
  - WHEN THE PROJECT WILL BE COMPLETED
  - HOW MUCH IT WILL COST

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## KEY PERFORMANCE INDICATORS

-RATE OF PROGRESS: HOW MANY FEATURES ARE GETTING COMPLETED AND ACCEPTED BY THE PRODUCT OWNER PER MONTH OR YEAR?

(OF COURSE PROPER METRICS HAVE TO BE SET, LIKE POINTS PER WEEK)

-REMAINING WORK: HOW MUCH WORK REMAINS IN THE BACKLOG? (METRICS AS ABOVE)

-LIKELY COMPLETION DATE

-LIKELY REMAINING COSTS

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## MANAGING RISKS IN AGILE PROJECTS

TO MAXIMIZE VALUE RISKS AND TECHNICAL DEPENDENCIES MUST BE CONSIDERED

THE CONCEPT OF RISK IS CLOSELY RELATED TO VALUE

THE VALUE DRIVEN DELIVERY DOMAIN ALSO INCLUDES THE RISK REDUCTION

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## REGULATORY COMPLIANCE

MANY AGILE PROJECTS OPERATE IN A HIGHLY REGULATED ENVIRONMENT

RULES ARE TYPICALLY DESIGNED TO ENSURE SAFETY

USUALLY THESE REQUIREMENTS ARE NOT NEGOTIABLE

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## PRIORITIZING VALUE

PRIORITIZATION IS CRUCIAL IN AGILE PROJECTS

CUSTOMER-VALUED PRIORITIZATION

PRIORITIZATION SCHEMES:-MUST HAVE

-SHOULD HAVE

-COULD HAVE

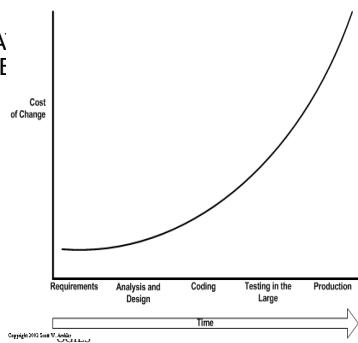
-WOULD LIKE TO HAVE BUT

NOT THIS TIME

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## DELIVERING INCREMENTALLY

ANOTHER WAY TO OPTIMIZE



## MINIMUM Viable PRODUCT

WHEN PLANNING A RELEASE OF FEATURES TO CUSTOMERS, THE RELEASE HAS TO MAKE SENSE, BE USEFUL AND DELIVER VALUE

MVP IS THE PACKAGE OF FUNCTIONALITIES THAT IS COMPLETE ENOUGH TO BE USEFUL TO THE USERS, YET STILL SMALL ENOUGH THAT IT DOES NOT REPRESENT THE ENTIRE PROJECT

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### EAT YOUR DESSERT FIRST

Value could be defined in terms of monetary benefit, compliance adherence, an answer to the competition in the market etc.

The term value can differ for each client based on what the client is expecting the product/software to accomplish.

In the agile way of project management, always the requirements are prioritized based on what adds more value to customer delivery.

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

## 3 Ways to Prepare Your Team for Success

### 1. Align Your Team Around Value

Ensure that everyone understands the importance of delivering value to your customers.

You need to cultivate a customer-focused culture where customer value is a fundamental pillar of your organization.

Encourage collaboration and communication among teams to ensure that everyone is working towards the same goals.

## 3 Ways to Prepare Your Team for Success

### 2. Understand Your Customer Value Proposition

Your team should have a deep understanding of your customer value proposition which answers the question: what outcomes does our solution deliver for customers?

A solid value proposition is clear, easy to understand, relevant to the customer, differentiated from the competition, quantifiable.

If you don't already have one in place, learn how to create a compelling customer value proposition.

40

## 3 Ways to Prepare Your Team for Success

### 3. Build The Right Processes

Now that you have a clear alignment around customer value, you need to have the right processes.

### Conclusion

When you effectively prepare your team to deliver customer value, your organization can truly thrive. You will be empowered to build your network of loyal customers and brand advocates and increase growth

41

## Some best practices of value delivery

1. Identify value, a monetary value, a competitive value.
2. Prioritize the requirements so that high value is delivered to the customer fast.
3. Deliver the value to the customer iteratively so that ROI is rapid
4. Receive the feedback and work on things which need improvement
5. Collaboration with all the stakeholders is **key** in identifying what adds more value to the overall project, to the client and to the whole process.

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## Some best practices of value delivery

1. Identify risks and reduce them. **Risks are anti-value**
2. Whenever there is a new requirement, compare it with the whole priority
3. Identify the Minimum Marketable Features (MMFs).
4. Experiment early to fail fast and rethink early the approach
5. Track the feedback of each value through prototyping, simulation, demonstration.

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## PROJECT MANAGEMENT FOR IT REVIEW LESSONS 1-7

### AGILE~~ITERATION&REQUIREMENT~~

«**DONE**»

### METHODOLOGIES to get VALUE

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44

## PROJECT MANAGEMENT FOR IT REVIEW LESSONS 1-7

...after a general analysis of AGILE APPROACH we presented 3+5 METHODOLOGIES outlining 3 words:

### ITERATION-REQUIREMENT-DONE

,presenting these methodologies:

FDD,DSDM,AUPXP,LEAN,KANBAN,CRYSTAL and finally ,SCRUM

**But the temptation of reaching value goals through a hybrid approach is very strong!**

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45

## VALUE DRIVEN DELIVERY

### THE TRUE REASON OF PERFORMING A PROJECT: TRADITIONAL, AGILE, HYBRID

**is VALUE DELIVERY**

## GOING FORWARD INTO AGILE MINDSET AND PRACTICES

IN ORDER TO PROVIDE YOU WITH A QUITE COMPREHENSIVE VIEW OF AGILE, AFTER DESCRIPTION OF CONTENTS AND METHODOLOGIES WE ANALYZED:

### CONTEXT

-**VALUE DRIVEN DELIVERY** ~~EAT YOUR DESSERT FIRST~~

AND WE WILL ANALYZE

-**STAKEHOLDER&TEAM: PEOPLE AS THE MOST IMPORTANT ITEM**

THEN WE WILL CLOSE ON WHAT&HOW TO ACT

-**ADAPTIVE PLANNING&PROBLEM DETECTION/RESOLUTION**

-**CONTINUOUS IMPROVEMENT** and DESIGN THINKING TO GO ON

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

## SOME CONCEPTS, NOT NOTIONS!

- **BUSINESS CASE**

Project justification to verify the feasibility of the project

- **BUSINESS VALUE**

**CONCEPTS THAT GUIDE BUSINESS.**

- **BUSINESS MODEL**

**COMPANY'S PLAN FOR MAKING PROFIT**

48

## VALUE

**The term value can differ for each client based on what the client is expecting the product to accomplish.**

49

## THANKS

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8 NEXT LESSON:STAKEHOLDERS,TEAMS,ADAPTIVE PLANNING

50

## PROJECT MANAGEMENT FOR INNOVATIVE PROJECTS (part 2 OF IT PROJECT MANAGEMENT)

8th LESSON MAY 14 th 2025

## STAKEHOLDERS&TEAMS

Mario Salano

1

## SUMMARY

1. INNOVATION AND METHODOLOGIES
2. AGILE CONCEPTS
3. AGILE METHODOLOGIES OVERVIEW WITHOUT SCRUM
4. SCRUM
5. LEAN
6. DESIGN THINKING
7. VALUE DRIVEN DELIVERY
8. STAKEHOLDERS,TEAMS
9. CASE STUDIES
10. EXERCISES
11. CONTINUOUS IMPROVEMENT
12. REVIEW
13. CONCLUSION

2

## PROJECT MANAGEMENT FOR IT REVIEW LESSONS 1-7

...after a general analysis of AGILE APPROACH we presented 3+5 METHODOLOGIES outlining 3 words:

## ITERATION-REQUIREMENT-DONE

Methodologies:FDD,DSDM,AUP,XP,LEAN,KANBAN,CRYSTAL and finally  
**SCRUM&HYBRID AGILE APPROACHES**

which

prioritize deliveries according to assigned value by the customer:

**"EAT YOUR DESSERT FIRST"**

3

## STAKEHOLDER&TEAM

## PEOPLE OVER PROCESSES

PROJECTS ARE UNDERTAKEN FOR PEOPLE AND BY PEOPLE

4

## REMINDER: AGILE VALUES

**AGILE MANIFESTO COMES BY EFFORTS IN DEVELOPING SOFTWARE TO VALUE:**

- 1-INDIVIDUALS AND INTERACTIONS OVER PROCESSES AND TOOLS
- 2-WORKING SOFTWARE OVER COMPREHENSIVE DOCUMENTATION
- 3-CUSTOMER COLLABORATION OVER CONTRACT NEGOTIATION
- 4-RESPONDING TO A CHANGE OVER FOLLOWING A PLAN

5

## PART A:STAKEHOLDERS

«any people who will be impacted or have impact on a project»

**Customers&users,suppliers,business representatives,project managers,norms representatives,quality inspectors,product owners,teams,scrummaster**

GETTING THEM INVOLVED IS ESSENTIAL FOR THE SUCCESS OF ANY PROJECT

6

## STAKEHOLDERS ENGAGEMENT:5 THEMES

- 1.TAKING CARE
- 2.ESTABLISHING A SHARED VISION
- 3.COMMUNICATION
- 4.WORKING COLLABORATIVELY

7

### 1-TAKING CARE OF STAKEHOLDERS

IN THE AGILE MINDSET THE CONCEPT OF STAKEHOLDER MANAGEMENT BECOMES

### **STAKEHOLDERS STEWARDSHIP**

8

### TAKING CARE OF STAKEHOLDERS

- STAKEHOLDERS STEWARDSHIP IS MAKING SURE THEY HAVE WHAT THEY NEED
- AS IN PRESCRIPTIVE MANAGEMENT, ALSO IN AGILE IT IS KEY TO IDENTIFY ALL THE STAKEHOLDERS AND CAREFULLY FOLLOW THEIR INVOLVEMENT
- SOME OF THEM ARE OBVIOUS BUT SOME OF OTHER ROLES MAY BE TRICKIER TO IDENTIFY SUCH AS AUDITORS
- EXCLUDING OR ALIENATING ANY OF THEM MAY PUT SUCCESS AT RISK

9

### TAKING CARE OF STAKEHOLDERS: EDUCATING THEM ABOUT AGILE

- SOME STAKEHOLDERS MAY BE NEW TO AGILE METHODS
- THEY MUST BE EDUCATED ON VALUES, GOALS, PRACTICES, BENEFITS
- ANY CHANGE MEETS SOME DEGREES OF SKEPTICISM AND CAUTION (NOT BAD)

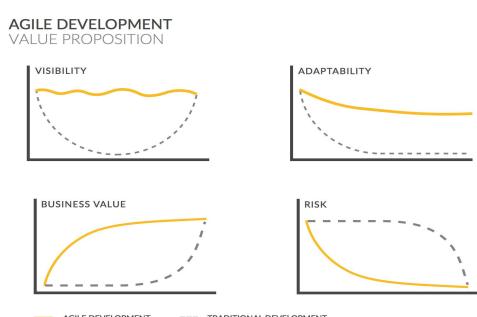
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### TAKING CARE OF STAKEHOLDERS: KEEPING THEM ENGAGED

- ONE BENEFIT OF SHORT ITERATIONS: STAKEHOLDERS DON'T LOSE INTEREST
- REMINDER: INCREASED VISIBILITY IS ONE ELEMENT OF THE AGILE VALUE PROPOSITION

11

### DELIVERY VALUE IS THE REASON TO DO PROJECTS



12

### ENGAGING STAKEHOLDERS

- STAKEHOLDERS MUST HEAR ABOUT CHANGE REQUESTS ASAP
- AN ONGOING DIALOGUE HELPS QUICK RISKS AND ISSUES IDENTIFICATION

13

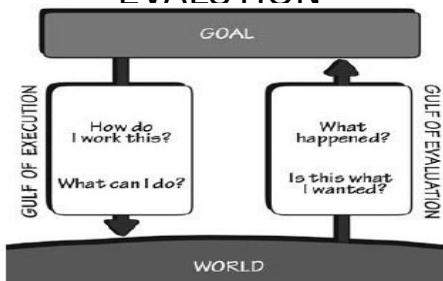
## GULF OF EVALUATION

The **gulf of evaluation** is the degree to which a system provides representations perceived and interpreted in terms of expectations and intentions of the user

The gulf is small when the system provides information about its state in a easy to interpret form matching the way the person thinks of the system"

14

## POOR STAKEHOLDERS ENAGEMENT RISK TO FALL IN THE GULF OF EVALUATION



15

## BRIDGE THE GULF OF EVALUATION

- COMMON BECAUSE MISMATCHES ARISE BETWEEN WHAT A PERSON ENVISIONS AND TRIES TO DESCRIBE AND HOW THIS DESCRIPTION IS INTERPRETED BY ANOTHER PERSON
- IF THE MISMATCH REMAINS UNCHECKED FOR TOO LONG REWORK OR FAILURE CAN OCCUR
- AGILE METHODS USE MANY TOOLS TO BRIDGE THIS GULF

16

## PRINCIPLES OF ENGAGING STAKEHOLDERS

- GET THE RIGHT STAKEHOLDERS
- CEMENT STAKEHOLDERS INVOLVEMENT
- ACTIVELY MANAGE THEIR INTERESTS
- FREQUENTLY DISCUSS WHAT «DONE» LOOKS LIKE
- SHOW PROGRESS AND CAPABILITIES
- CANDIDLY DISCUSS ESTIMATES AND PROJECTIONS

17

## 2-ESTABLISHING A SHARED VISION

- CHARTER IS ONE OF THE FIRST DOCUMENTS PRODUCED FOR A PROJECT
- IT DESCRIBES GOALS, CONTENTS, APPROACH AND GETS AUTHORIZATION
- TWO KEY CHARTER ASPECTS ARE ACKNOWLEDGED IN AGILE:

**1- SCOPE MAY CHANGE**

**2-INITIALLY SOME ASPECTS MAY BE UNKNOWN**

**SO FOCUS IS MAINLY ON GOALS**

18

## DEVELOPING AN AGILE CHARTER

- WHO WILL BE ENGAGED?
- WHAT IS THE PROJECT ABOUT?
- WHERE WILL IT OCCUR?
- WHEN WILL IT START AND END?
- WHY IS IT BEING UNDERTAKEN?
- HOW WILL IT BE UNDERTAKEN?

19

## DONE and DELIVERABLES

2 ESSENTIAL CONCEPTS FOR ESTABLISHING A SHARED VISION

- A LIST OF ITEMS MUST BE DISCUSSED AND CHECKED IN A SW PROJECT

**BEFORE DECLARING ANYTHING «DONE»**

• A DELIVERABLE IS ANY VERIFIABLE PRODUCT, RESULT, CAPABILITY TO PERFORM A SERVICE THAT MUST BE PRODUCED TO COMPLETE A PROJECT OR A PHASE

**DELIVERABLES MEETING ACCEPTANCE CRITERIA ARE SIGNED OFF AND APPROVED BY THE CUSTOMER OR SPONSOR**

LIST OF ITEMS TO BE DISCUSSED AND CHECKED IN A SW PROJECT  
**BEFORE DECLARING ANYTHING «DONE»**

- ARE ALL UNITS **TESTED**?
- IS ALL CODE **WRITTEN**?
- HAS THE CODE BEEN **REFACTORED** TO THE TEAM'S SATISFACTION?
- DOES THE BUILD **SCRIPT** INCLUDE ANY NEW MODULES?
- DOES THE INSTALLER **MIGRATE** DATA WHEN APPROPRIATE?
- HAVE ALL KNOWN BUGS BEEN **FIXED**?

20

21

## DELIVERABLES

- KEY ELEMENTS OF THE SCOPE OF A PROJECT
- THEY INCLUDE BOTH THE PRODUCT/SERVICE OUTPUTS AND ANCILLARY RESULTS AS REPORTS AND DOCUMENTATION **IF PLANNED**

22

## DELIVERABLES

FINAL PREREQUISITE BEFORE CLOSING A PROJECT:  
CONFIRMATION THAT THE CUSTOMER IS SATISFIED  
WITH THE QUALITY OF ALL THE DELIVERABLES

TANGIBLE OR INTANGIBLE AS A RESULT OF  
THE PROJECT TO BE DELIVERED TO A CUSTOMER

23

## 3-COMMUNICATION WITH STAKEHOLDERS

STATE OF A KNOWLEDGE PROJECT, OFTEN INVISIBLE, CAN'T BE STATED LOOKING **AROUND THE OFFICE**  
SO IT IS CRITICAL A FREQUENT COMMUNICATION TO ENSURE EVERYONE IS ON THE

**SAME PAGE**

MANY PROJECT FAILURES ARE TRACKED BACK TO  
**FAILURE COMMUNICATION**

24

## KNOWLEDGE SHARING

- INFORMATION IS THE BASIC COMMODITY OF AGILE PROJECTS
- AIM MUST BE SHARING INFORMATION AND MAKING IT AVAILABLE TO EVERYONE TO CONSUME IT RATHER THAN HOARDING IT

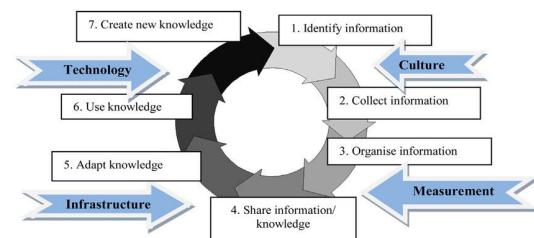
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## KNOWLEDGE SHARING

- IT APPEARS AT MANY LEVELS IN BOTH OBVIOUS AND SUBTLE WAYS:
- TEAM TO CUSTOMER
- CUSTOMER TO TEAM
- KANBAN BOARDS
- INFORMATION RADIATORS
- PERSONAS
- WIREFRAMES

26

## KNOWLEDGE TRANSFER IN XP's CORE PRACTICES



27

## INFORMATION RADIATORS

AGILE'S UMBRELLA TERM FOR HIGHLY VISIBLE DISPLAYS OF INFORMATION:  
TOOLS OFTEN REFERRED AS «VISUAL CONTROLS»,  
DISPLAYED IN HIGH-TRAFFIC AREAS TO MAXIMISE EXPOSURE  
FOR A QUICK STAKEHOLDERS INFORMATION ABOUT THE  
PROJECT'S STATUS

THEY «RADIATE» INFORMATION QUICKLY TO ANYONE WHO IS  
INTERESTED

28

## DATA DISPLAYED IN INFORMATION RADIATORS

- FEATURES DELIVERED VERSUS FEATURES TO BE DELIVERED
- WHO IS WORKING ON WHAT
- FEATURES SELECTED FOR THE CURRENT ITERATION
- VELOCITY AND DEFECT METRICS
- RETROSPECTIVE FINDINGS
- LIST OF ISSUES AND THREATS
- STORY MAPS
- BURN CHARTS

29

## DATA DISPLAYED IN INFORMATION RADIATORS



## REMOTE TEAMS

A lot of people work from home these days and many aren't used to it-

A period of adjustment is needed

Companies try to provide virtual collaboration software by allowing customers to expand the use of the platforms without additional costs.

**But successful remote working is more than just to get the right software solution**

It requires a different mindset, a different way of collaborating **MANY CHALLENGES**

**The ability to move the project forward is important to people right now as they look for some sense of continuity in a time of extreme disruption.**

31

## INNOVATION GAMES

- REMEMBER THE FUTURE **BASED ON COGNITIVE PSYCHOLOGY**
- PRUNE THE PRODUCT TREE **BRAINSTORMING PRODUCT FEATURES TO SET PRIORITIES AND DEFINE SEQUENCES**
- SPEEDBOAT **REDUCE OR AVOID THREATS AND EXPLOIT OPPORTUNITIES**
- BUY A FEATURE **PRIORITIZATION EXERCISE**
- BANG FOR THE BUCK **VALUE VERSUS COST RANKINGS**

32

## 4-WORKING COLLABORATIVELY

- COLLABORATION IS IN THE 3° VALUE AND 4° PRINCIPLE OF THE MANIFESTO

**BENEFITS:**

1. GENERATION OF WISED DECISION
2. PROMOTION OF PROBLEM SOLVING
3. ACTION FOSTERING
4. SOCIAL CAPITAL BUILDING
5. FOSTERING OWNERSHIP OF COLLECTIVE PROBLEMS

33

## TOOLS&TECHNIQUES FOR A COLLABORATIVE WORK

- WORKSHOP: MEETINGS WHERE PARTICIPANTS GET THE WORK DONE
- DIVERSE GROUPD REFLECTING A WIDER RANGE OF VIEWPOINTS
- PREVENTION OF DOMINANT INDIVIDUALS FROM DISCUSSION MONOPOLIZING
- 5 MINUTES ACTIVITY OF EVERY PARTICIPANT  
**WORKSHOP NATURE IS VERY ACTIVE**
- BRAINSTORMING: GENERATION OF IDEAS («there are not stupid ideas»)
- INNOVATION GAMES: FACILITATED TECHNIQUES FOR BETTER UNDERSTANDING OF COMPLEX OR AMBIGUOUS ISSUES

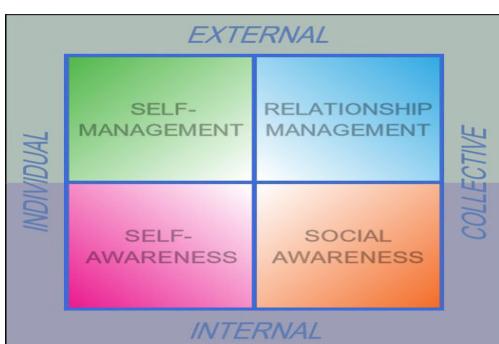
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## 5-INTERPERSONAL SKILLS:HARDER THAN TECHNICAL SKILLS

- EMOTIONAL INTELLIGENCE = ABILITY TO IDENTIFY, ASSESS, INFLUENCE OUR EMOTIONS AND THOSE OF OTHER PEOPLE
- OUR OWN FEELINGS HAVE TO BE FIRST RECOGNIZED; THEN TO BE CONTROLLED
- THEN WE CAN DEVELOP EMPATHY WITH OTHERS, IDENTIFYING WHEN THEY ARE STUCK, FRUSTRATED, UPSET IN ORDER TO HELP THEM
- AT THIS POINT WE CAN USE OUR ABILITY TO INFLUENCE, INSPIRE, LEAD OTHERS

35

## EMOTIONAL INTELLIGENCE



36

## NEGOTIATION

- 3 SUBJECTS:**
- REQUIREMENTS**
- PRIORITIES**
- »DONE»**

37

## PART B:AGILE TEAMS

- AS TEAM MEMBERS ARE STAKEHOLDERS MANY COVERED ITEMS IN PART A AS COMMUNICATION,COLLABORATION, EMOTIONAL INTELLIGENCE,FACILITATION ARE ALSO RELEVANT TO TEAM PERFORMANCE, MAINLY FOR LEADERS

WHAT DOES REMAIN TO BE COVERED?

1. BUILDING AGILE TEAMS
2. TRACKING TEAM PERFORMANCES

38

## PEOPLE OVER PROCESSES

1° VALUE OF MANIFESTO:

«**INDIVIDUALS AND INTERACTIONS OVER PROCESSES AND TOOLS»**

**«The soft stuff is the hard stuff»**

39

## BUILDING AGILE TEAMS

- TEAM: A SMALL NUMBER OF PEOPLE WITH COMPLEMENTARY SKILLS; COMMITTED TO A COMMON PURPOSE
- AGILE METHODS RECOMMEND TO KEEP THE DELIVERY TEAM SMALL TO ALLOW THE DEVELOPMENT OF RELATIONSHIPS AND A DIRECT COMMUNICATION

40

## BUILDING AGILE TEAMS GENERALIZING SPECIALISTS

- SPECIALISTS HAVE A NARROW SKILLSET AS THEY SPECIALIZE IN ONE FUNCTION OR ROLE BY CAUSING 2 PROBLEMS:
  - 1-MULTIPLE HANDOFFS NEED: SLOW AND RISKY
  - 2-THE SEQUENTIAL PROCESS CAN LEAD TO BOTTLENECKS

41

## CHARACTERISTICS OF HIGH PERFORMANCE TEAMS

- SHARED VISION (faster decisions and trust)
- REALISTIC GOALS (people need success)
- SMALL TEAM SIZE (communication and tacit knowledge)
- SENSE OF TEAM IDENTITY (increase loyalty to the team)
- STRONG LEADERSHIP (pointing out the way, then teams own the mission)

42

## AGILE LEADERSHIP

Creating the right context for self-organisation:where **agile** teams  
-collaborate  
-learn from each other  
-get quick feedback from users  
-are focused on continuous learning.

**The agile leader doesn't manage the people**

43

## AGILE LEADERSHIP VERSUS PRESCRIPTIVE MANAGEMENT

Traditional management is based on decision-makers who **control** the behaviors of the people underneath.

Agile Leadership flips the chart upside down focusing on **customers at the very top**.

44

## LEADERSHIP ALSO BY ACTIVE LISTENING

- «DO WHAT I MEAN,NOT WHAT I SAY»
- OUR LISTENING SKILLS PROGRESS THROUGH 3 LEVELS:
  - 1-**INTERNAL**: INTERPRETATION THROUGH OUR LENS (*how is this going to affect me?*)
  - 2-**FOCUSED**:PUTTING IN THE MIND OF THE SPEAKER (*how are her words,pauses, voice, tone?*)
  - 3-**GLOBAL**: ADDITION OF SUBTLE AND ENVIRONMENTAL INDICATORS (*do other listeners seem to agree or are they averting their eyes?*)

45

## FACILITATION IN MEETINGS

- **GOALS: DECISIONAL OR INFORMATIVE?**
- **RULES: DURATION, RESPECTING VIEWS OF PARTICIPANTS**
- **ASSESSING: MEETING IS MUST BE PRODUCTIVE, ALLOWING EVERYONE TO EXPRESS HIS OPINIONS**

46

## ADAPTIVE LEADERSHIP

- ONE POPULAR MODEL IS THAT OF SITUATIONAL LEADERSHIP WHICH IDENTIFIES 4 LEADERSHIP STYLES:  
1-FORMING /DIRECTING:STORMIN (low competence,high commitment)  
2-STORMING/COACHING: (some competence,low commitment)  
3-NORMING/SUPPORTING: (moderate competence, variable commitment)  
4-PERFORMING/DELEGATING: (high competence,high commitment)

47

## MOTIVATION

"If you want to build a boat, don't gather men to cut wood, divide tasks and issue orders, but teach them nostalgia for the vast and infinite sea"

Antoine de Saint-Exupéry

48

## MOTIVATION

- I have missed more than 9000 shots in my career.
  - I have lost almost 300 games.
  - 26 times, they gave me the confidence to make the winning shot of the last second and I was wrong.
  - I have failed over and over again in my life.
- That's why I was successful**  
**Michael Jordan**

49

## TRAINING, COACHING, MENTORING

- **TRAINING:** teaching skill or knowledge via practice and instruction
- **COACHING:** facilitated process helping people to develop their performance
- **MENTORING:** professional relationship, for tackling issues on a as needed basis

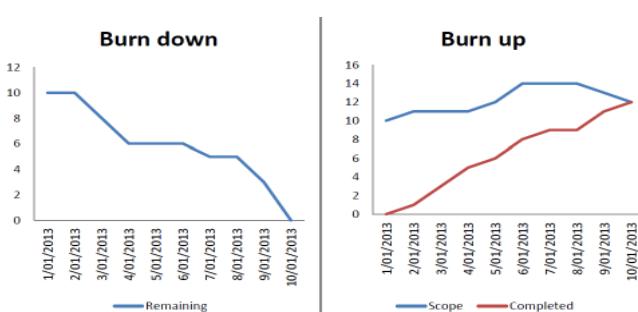
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## BURN CHARTS

- ONE OF THE MOST COMMON TOOLS DISPLAYED ON HIGHLY VISIBLE INFORMATION RADIATORS
- BURNDOWN CHARTS SHOW THE ESTIMATED REMAINING EFFORT
- BURNUP CHARTS SHOW THE ALREADY DELIVERED FEATURES

51

## BURN CHARTS



## WHAT DID I TRY TO COMMUNICATE TO DAY?

- PEOPLE OVER PROCESSES
- GETTING STAKEHOLDERS INVOLVED
- AND TEAM MOTIVATED IS ESSENTIAL FOR THE SUCCESS OF ANY PROJECT

53

## EXERCISE 1

- 1-Say the best way to share the team progress with other stakeholders
  - 2-Definition of «done» in Scrum: is it
- A-Coming by the product owner  
B-Defined by the Scrummaster  
C-Defined by the team  
D-Agreed by the team and the product owner
- 3-Describe an agile project charter  
4-To what the gulf of evaluation refers to?
- A-Gap between product owner and testers knowledge  
B-Mismatch between customer's vision and team understanding of a solution  
C-Disparity between what a customer want and what he really need

54

## EXERCISE 2

- 1-What would be a step forward in your tem's evolution?
  - 2 If it is not possible to locate all team members in the same location what are the likely to experience?
  - 3. As an agile team leader what do you want to avoid:
- A-prioritizing team goals  
B-rewards for expected behaviour  
C-individual motivation  
D-reward individual goals at the expense of project goals
- 4 1- At what team formation phase is conflict like to be the highest?  
(forming, storming...)

55

## PROJECT MANAGEMENT FOR IT REVIEW LESSONS 1-7

### AGILE~~ITERATION&REQUIREMENT~~ «DONE»

METHODOLOGIES to get VALUE

A CASE STUDY SHOWED THAT IT'S MAINLY A MATTER OF MINDSET WITH SOME TAILORING



## PROJECT MANAGEMENT FOR IT REVIEW LESSONS 1-7

...after a genral analysis of AGILE APPROACH we presented 3+5 METHODOLOGIES outlining 3 words:

### ITERATION-REQUIREMENT-DONE

,presenting these methodologies:  
FDD,DSDM,AUPXP,LEAN,KANBAN,CRYSTAL and finally ,SCRUM  
But the temptation of reaching value goals through a hybrid approach is very strong!

56

57

## GOING FORWARD INTO AGILE MINDSET AND PRACTICES

IN ORDER TO PROVIDE YOU WITH A QUITE COMPREHENSIVE VIEW OF AGILE, AFTER DESCRIPTION OF CONTENTS AND METHODOLOGIES WE ANALYZED:

### CONTEXT

-VALUE DRIVEN DELIVERY ~~EAT YOUR DESSERT FIRST~~

AND WE WILL ANALYZE

-STAKEHOLDER&TEAM: PEOPLE AS THE MOST IMPORTANT ITEM

THEN WE WILL CLOSE ON WHAT&HOW TO ACT

-ADAPTIVE PLANNING&PROBLEM DETECTION/RESOLUTION

-CONTINUOUS IMPROVEMENT and DESIGN THINKING TO GO ON

58

## Project Management for IT Projects: part 2 **INNOVATIVE PROJECTS**

LESSON 9-May 21st 2025  
CASE STUDIES

Mario Salano  
April - May 2025

1

## Course agenda (part 2:INNOVATIVE PROJECTS)

1. INNOVATION AND METHODOLOGIES
2. AGILE CONCEPTS
3. AGILE METHODOLOGIES OVERVIEW WITHOUT SCRUM
4. SCRUM
5. LEAN
6. DESIGN THINKING
7. VALUE DRIVEN DELIVERY
8. STAKEHOLDERS,TEAMS,ADAPTIVE PLANNING
9. CASE STUDIES
10. EXERCISES
11. CONTINUOUS IMPROVEMENT
12. REVIEW

OBJECTIVE:**STUDENTS SUPPORT**,FACING THE REAL WORK LIFE OF TODAY

THE WORLD IS MORE AND MORE "**PROJECTIZED**".  
PROJECT MANAGEMENT WITH ITS BASIC CULTURE BECOMES A **FORMIDABLE ASSET**

## CONSIDERATIONS ON PROJECT MANAGEMENT

- One of the most used definitions is the one put forward by the Project Management Institute in the PMBOK (A Guide to the Project Management Body Of Knowledge - PMBOK), which defines a project

### A TEMPORARY EFFORT TO CREATE A UNIQUE PRODUCT/ SERVICE

Projects have always been done since ancient times, much more rarely than today, in a projectized world

4

## In the reconstruction after the Second World War methodologies proved increasingly necessary

- 1969: after months of conversations between Jim Snyder and Gordon Davis, a decision was taken to form a new organization to provide a means for project managers to associate, share information and discuss issues
- A meeting in Georgia sealed the birth of the Project Management Institute
- Shortly thereafter, articles of incorporation were signed in Pennsylvania, by the founders of PMI: James Snyder, Eric Jenett, Gordon Davis, E.A. "Ned" Engman and Susan C. Gallagher.

5

## PROJECT MANAGEMENT HISTORY

4 periods :

- Before 1958 GANTT in 1910
- 1958 to 1979 CPM and PERT
- 1980 to 1994 COMPUTER ANALYSIS
- 1995 to present AGILE

6

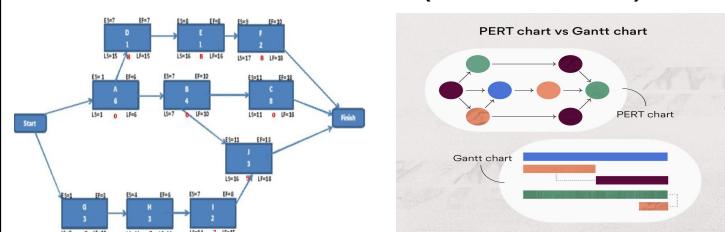
### GANTT 1910



- The most popular way of showing activities displayed against time.
- On the left is a list of the activities and along the top is a time scale.
- Each activity is represented by a bar reflecting activity start, duration, end

7

## CPM and PERT (1958-1979)



- CPM is a method for determining the minimum duration of a project by identifying the critical activities that characterize it
- PERT is a statistical method of determining the timing of project activities. It assumes the determination of optimal, probable and pessimistic estimate values

8

## COMPUTER ANALYSIS (1980-1994)



- The process of determining the aspects of a project .

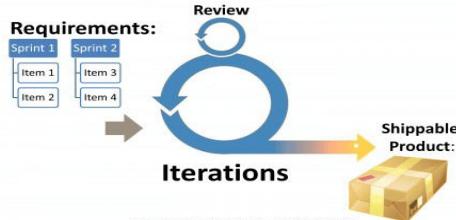
- It helps in identifying whether the project is as expected and in the budget.
- By a project analysis, the current or future problems that occur during the project can be identified.

9

## AGILE (1995 to PRESENT)

**Iterative** approach to delivering a project throughout its **life cycle**.

### Agile Projects:



10

## PM EVOLUTIONS

- Earlier project management innovations include the Gantt chart around 1910
- Modern project management is considered to start in 1958, characterized by the development of CPM and PERT methods.
- NASA and the Apollo programs contributed to the advancement of project management, mandating use of work breakdown structure, CPM, PERT, and other tools.**
- Computer analysis started in the 1970s, but was much more common since 1980s
- The first lightweight methodologies were developed in the 1980s in response to the growing needs of software developers.
- Agile Manifesto defined values and principles underlying modern Agile methodologies.

11

## BEFORE 1958

- Project managers couldn't benefit from project management methods
- Instead, it's assumed the project's success depended on random factors like the talent of individual project members
- Throughout history, project management was considered just another skill, rather than its own discipline..

12

## 1958-1979

- Historians agree the modern project management era began around this time
- The role of project manager was becoming more important in itself, rather than as part of the chief engineer's job.
- Techniques like CPM and PERT continued to be improved
- Until the 70s, project management was still applied primarily in defense, construction, and aerospace industries.
- However, throughout the 70s it was applied more widely in other areas.
- The 70s also saw the development of some tools we now consider essential, such as WBS

13

## 1980-1994

- In the 1980s, project managers began to develop new attitudes to project risk management.
- Instead, more time was spent planning complex projects from the start, using new methods to anticipate and avoid risks.
- Software engineering was becoming useful in every field.
- Software projects might be very complex, but not have large teams.
- In 1986, PMI would go on to issue an expanded version in the first edition of the PMBOK

14

## 1995 to PRESENT

- The modern age is defined by the Internet, as true in project management as anywhere.
- The access and connectivity it allows, have transformed methods for organizing and performing work.
- In 2001 the Agile Manifesto was published, outlining a new philosophical approach and new techniques
- Concepts from project management have begun to shape business strategy overall, benefiting strategic management.

15

## APOLLO AND THE MOON

The most lasting legacy of Apollo was an improved understanding of how:

1. to plan,
2. to coordinate
3. to monitor the myriad activities that were the Apollo building blocks

16

## PROJECT MANAGEMENT EVOLUTIONS and FIGURES FROM ANTIQUITY TO END OF 1800

1. 2504BC: The pyramid of Giza-Egypt; 230 meters long, 137 meters high, 3 million stone blocks, 30,000 working people. Each block weighed between up to 8 tons
2. 475BC: The Great Wall of China to protect Chinese cities from the Huns. Today: a wall of 8,851 km. The walls are 7.8 meters high and up to 5 meters wide.
3. The Brooklyn Bridge (1883) - It was the first bridge supported by steel cables, the longest in the world, 1054 m. To date, about 144,000 vehicles cross the bridge every day

17

## PROJECT MANAGEMENT EVOLUTIONS and FIGURES FROM 1914

1. 1914 The Panama Canal revolutionized shipping by connecting the Atlantic to the Pacific. Currently, more than 15,000 boats cross the canal every year.
2. 1937 The Golden Gate Bridge to connect San Francisco to the bay. A total of 130000 km of cables. The 2 km of bridge have to face heavy wind and risk of earthquakes.
3. 1994 Channel Tunnel to Great Britain without a boat. A length of over 50 km, a depth of 76 meters. 13,000 people (engineers, technicians, workers) took 6 years to build.
4. Dubai Tower 828 meters high, the tallest building in the world since 2010. 163 floors for over 300000 m<sup>2</sup>

18

## 2020 SAN GIORGIO BRIDGE (FORMER MORANDI)

- Small masterpiece of Project Management in terms of scope, cost and mainly of time that was the main expectation of everyone
- The work designed by the star architect Renzo Piano was built in record time
- 1000 workers were employed worked non-stop 24 hours a day, 7 days a week.
- In total, the new bridge cost 202 million between the design and construction parts, while 19 million was spent on the demolition of what remained of the old Morandi

19

## 2020 SAN GIORGIO BRIDGE

- The San Giorgio Bridge is supported by 18 reinforced concrete piers and is composed of a steel deck, designed by Renzo Piano with the shape of the keel of a ship, with a continuous girder of a total length of 1067 meters divided into 19 spans
- .

20

## SAN GIORGIO BRIDGE

- The real technological innovations are represented by the installation of a special dehumidification system to avoid the formation of saline condensation and limit the damage from corrosion of the brackish air that comes from the Ligurian gulfs.

21

## SAN GIORGIO

- Maintenance, the innovation is brought by the use of two robots, hooked to rails under the bridge, which will travel from one side to the other without interrupting traffic in order to make x-rays of the structure thus eliminating the inspection teams on site, aerial scaffolding, partial roadway block

22

## SAN GIORGIO

- The operations of the two robots were then be integrated with the data collected by intelligent sensors capable of perceiving millimeter deviations.
- Finally, the element of environmental sustainability is ensured by the photovoltaic panels, which will produce the energy necessary for the functioning of the systems of the San Giorgio bridge

23

## PERSONAL PROJECTS

### BEFORE AWARENESS OF PM

1976 from AM a SCR

### PROGRESSIVE AWARENESS OF PM

1977 from tubes to radiators

1998-99 Electronic drive for market

1979 7,5 MVA

### 2002-2004 Industrial Robot Control

1980 SC reactance

2013 Charter for humanoid robot

1984-87 motogenerators 14kW

2016 Branch Liguria for PMI

1983 transistor chopper 110 V

1992-95 digital multiple drives

24

## PERSONAL PROJECTS

### BEFORE AWARENESS OF PM

### PROGRESSIVE AWARENESS OF PM

- Mainly a design effort assuming the project success depended on random factors like the talent of individual project members
- No stakeholders management
- No risk management
- Even poor budget
- Timing: ASAP

- Charter
- Scope management
- Team building
- Iterations for software
- Remote work
- Hybrid agile-prescriptive

25

## CASE STUDY

### CONTROL SYSTEM FOR INDUSTRIAL ROBOTS (2004)

26

## COMAU INDUSTRIAL ROBOT



## INDUSTRIAL ROBOT LINE FOR CAR MANUFACTURING



## BUILDING THE 500E car



### CONTROL SYSTEM FOR INDUSTRIAL ROBOTS (2004) SHORT STORY

- 1989 A very smart engineer (Mr Franzolini) started a collaboration with Comau (COnsortio MACchine Utensili) an Italian company, part of the Stellantis group, in Turin, in industrial automation.
- Comau creates technologies for the production vehicles, industrial robots,solutions,, dedicated machining centers
- Founded in 1973, it is present in 13 countries, with 9 production plants, 6 structures dedicated to the development of products and technologies and 5 centers focused on digital skills and technologies, with a total of about 4000 employees and more than 1200 registered patents.

30

### COMAU and MOOG

- 1998 second generation of drives for Comau by MOOG
- 2002 Joint venture FIAT-FANUC, failed quickly as from management reasons
- 2004 Complete CONTROL SYSTEM FOR INDUSTRIAL ROBOTS by MOOG

31

## MOOG

- Over the last 70+ years, MOOG developed design and manufacture of the most advanced motion control products for aerospace, defense, industrial and medical applications,where precise control of velocity, force, acceleration and fluid flow are critical.
- The motion control portfolio has expanded to include all forms of actuation technology, sophisticated control electronics and software.
- Moog products reflect the culture where the opportunity to solve a challenging control problem is always welcomed.

32

## CASE STUDY

Story telling of the case study:

- new robot control performed in 2002-2004 for COMAU ROBOTICS
- the overhaul project included a complete series of drivers for 6-8 axes antropomorphic robots

33

## CHALLENGING

Even with some challenging features (space and costs mainly) the development did not appear too much challenging with the exception of software development based on 2 innovative concepts:

- 1-POLE PLACEMENT CONTROL
- 2-INDUSTRIAL ETHERNET COMMUNICATION

34

## AXIS CONTROLLER



35

## Hardware

### 2 MICROPROCESSORS STRATEGY:

1. DSP for control loops (16 bit): Current, Speed, Position
  2. MPC8245 for general control: The MPC8245 Integrated Host Processor supports applications where cost, space, power consumption and performance are critical requirements.
- Provides a high level of integration, significantly reducing system component cost

36

## POLE PLACEMENT CONTROL

- Method employed in feedback control system theory to place the closed-loop poles of a plant in pre-determined locations in the s-plane.
  - Placing poles is necessary because the location of the poles corresponds directly to the eigenvalues of the system, which control the characteristics of the response of the system in **variable conditions**

37

## POLE PLACEMENT CONTROL

- Alliance with Salvagnini which got a preliminary version of this method from the inventor
- Salvagnini is a worldwide leader of metal bending machines which also use industrial robots
- So a consortium was formed with 3 companies: COMAU, SALVAGNINI, MOOG

38

## ETHERNET

Family of standardized technologies for local area networks

Marketed in 1980

Initially standardized in 1983 as IEEE 802.3

Widely used in industry, the Internet Protocol is commonly transmitted over Ethernet and therefore is considered one of the key technologies that make up the Internet

39

## INDUSTRIAL ETHERNET

- Use of Ethernet in an industrial environment with protocols that provide determinism and real-time control.
- Protocols for industrial Ethernet include EtherCAT, PROFINET, POWERLINK, SERCOS III, CC-Link IE, and Modbus TCP.
- Our proprietary system was called ETHERSYNC

40

## INDUSTRIAL ETHERNET

- Industrial Ethernet refers to the use of standard Ethernet protocols with rugged connectors and extended temperature switches in an industrial environment, for automation
- Components used in plant process areas must be designed to work in harsh environments of temperature extremes, humidity, and vibration that exceed the ranges for information technology equipment intended for installation in controlled environments
- The use of fiber-optic Ethernet variants reduces the problems of electrical noise and provides electrical isolation.

41

## INDUSTRIAL ETHERNET

- Some industrial networks emphasized deterministic delivery of transmitted data, whereas Ethernet used collision detection which made transport time for individual data packets difficult to estimate with increasing network traffic.
- Typically, industrial uses of Ethernet employ full-duplex standards and other methods so that collisions do not unacceptably influence transmission times.

42

## CHARTER OF COMAU 3 (3° generation of electrical robots after the first started in 1989)

### · PROJECT CHARTER HIGH LEVEL

- 1GOALS (WHY), Motivations, Planned Income
- 2WHAT, Descriptions, Differentiating&Consistency Idea, Magic Ingredient, Canvas of idea
- 3APPROACH (HOW), Risks avoidance
- 4MILESTONES (WHEN)
- 5BUDGET (HOW MUCH): cost, planned income
- 6STAKEHOLDERS&RESOURCES (WHO) Competencies, Customers, Competitors, Canvas of customers

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43

## DECISION OF HYBRID METHODOLOGY

The heavy presence of software development made me to decide for

### a hybrid prescriptive-scrum methodology

44

## TEAM

- 5 software engineers (2 in Casella, 2 in Salvagnini, 1 in Cork-Ireland)
- 3 Hardware engineers in Casella for power and control hardware
- 3 test engineers in Casella
- 2 document engineers

45

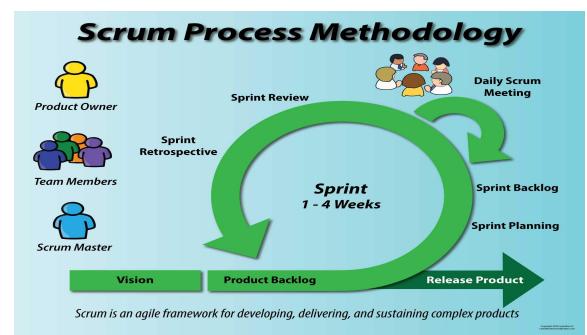
## INTRODUCED SCRUM METHODS

A management framework was set with a team using self-organize and work towards the common goal.

We organized a set of meetings, tools, and roles for efficient project delivery.

46

## ALMOST SCRUM....



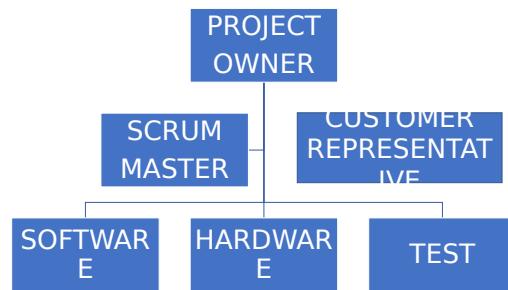
47

## ROLES

- SCRUMMASTER (MYSELF)
- PRODUCT OWNER (CHIEF ENGINEER)
- CUSTOMER REPRESENTATIVE

48

## 1° LEVEL WBS



49

## ITERATIONS

1. SPECIFICATION AND SCOPE AGREEMENT: NOVEMBER 2001-JANUARY 2002
2. AGREEMENT SIGNATURE: FEBRUARY 2002
3. FIRST SOFTWARE SUPPLIED TO COMAU MOVING A ROBOT: APRIL 2002!!!!
4. ABOUT 20 ITERATIONS EACH ONE WITH DETAILED CUSTOMER COLLABORATION
5. NOISE PROBLEMS REMOVED WITH DETAILED SPREAD OF CAPACITORS
6. LITIGATION RELATED TO NOISE PROBLEMS
7. REMOVAL OF NOISE PROBLEMS WITH A REENGINEERING OF COMAU CABLING
8. 4 SUCCESSFUL PROTOTYPES MAY 2003
9. START PREPRODUCTION OF 16 SYSTEMS END OF 2004
10. DINNER PAID BY ME TO THE TEAM

50

## TESTS

- In 3 locations:
  - Casella
  - Vicenza
  - Torino

51

## 2 axes control



52

## 6-8 axes power control



53

## SERVOMOTOR FOR ROBOTICS



54

## LITIGATION:NOISE

- WE DEMONSTRATED THAT COMAU CABLING WAS REALLY A HIGH SOURCE OF NOISE ALSO IN COMPLIANCE TO EMI/EMC DIRECTIVES

55

## TRUE OR FALSE?

1. NASA and the Apollo programs contributed to the advancement of project management
2. MOOG provided Comau with an innovative way to cook pasta
3. 3 greatest players in industrial robotics are Fanuc, ABB, Comau
4. The Great Wall of China used agile to be developed

56

## STATUS OF THE COURSE AFTER TODAY LESSON 8:

INNOVATIVE PROJECTS:STAKEHOLDERS,TEAMS,ADAPTIVE PLANNING

### LESSONS 1,2,3,4,5,6,7,8,9

- INNOVATION&METHODOLOGY
- REQUIREMENTS
- ITERATION
- SPECIFIC AGILE METHODOLOGIES
- LEAN START UP
- DESIGN THINKING
- VALUE DRIVEN DELIVERY
- PEOPLE
- REAL PROJECT:COMAU

### NEXT LESSON 10 EXERCISES



57

## LEARNT IMPORTANT CONCEPTS IN 9 LESSONS

1. INNOVATION
2. AGILITY
3. VALUE DRIVEN DELIVERY
4. DELIVERABLE
5. EMPIRICAL PROCESS CONTROL
6. PRODUCT OWNER
7. TEAM
8. SCRUM-MASTER
9. SPRINT
10. DONE
11. LEAN
12. WASTE
13. CREATIVITY
14. DESIGN THINKING
15. VALUE DRIVEN DELIVERY
16. EAT YOUR DESSERT FIRST
17. MINIMUM VISIBLE PRODUCT
18. STAKEHOLDERS,TEAM,ADA

## -Projects have always been done since ancient times

-4 periods for the evolution of PM

- Before 1958: GANTT in 1910
- 1958 to 1979: CPM and PERT
- 1980 to 1994: COMPUTER ANALYSIS
- 1995 to present: AGILE

-San Giorgio Bridge: masterpiece of PM in terms of scope, cost and mainly of time

58

THANKS! NEXT 10th LESSON:EXERCISES

### TIPS FOR THE EXAM:

### POSSIBLE QUESTIONS:

-explain the 4 eras of Project Management

- CLOSING LESSON OF THE COURSE: MAY 30TH

59

# Project Management for IT Projects: part 2

## **INNOVATIVE PROJECTS**

LESSON 10-May 2025

### **EXERCISES**

Mario Salano  
April - May 2025

## **Course agenda (part 2:INNOVATIVE PROJECTS)**

1. INNOVATION AND METHODOLOGIES
  2. AGILE CONCEPTS
  3. AGILE METHODOLOGIES OVERVIEW WITHOUT SCRUM
  4. SCRUM
  5. LEAN
  6. DESIGN THINKING
  7. VALUE DRIVEN DELIVERY
  8. STAKEHOLDERS,TEAMS,ADAPTIVE PLANNING
  9. CASE STUDIES
- 10EXERCISES**
11. CONTINUOUS IMPROVEMENT and REVIEW

1

2

## **PROJECT MANAGEMENT FOR IT REVIEW LESSONS 1-9**

General analysis of AGILE APPROACH

8 METHODOLOGIES **outlining 3 words and 2 main methodologies:**

## **ITERATION-REQUIREMENT- DONE, SCRUM HYBRID APPROACH**

## **EXERCISE**

- 1-Definition of «done» for software projects (10 points)
  - 2-To what the gulf of evaluation refers to?
- A-Gap between product owner and testers knowledge  
 B-Mismatch between customer's vision and team understanding of a solution  
 C-Disparity between what a customer want and what he really need

3

4

### **1A-DEFINITION OF DONE FOR A SOFTWARE PROJECT**

1. Tested: all tests finished?
2. Coded: all code written?
3. Designed: code refactored? (making small changes without altering the behavior)
4. Integrated: fitted into the rest of software?
5. Builds: any new modules from the script? (script is a program, written in a particular class of programming languages, i.e. scripts designed to be executed within an operating shell)
6. Installs: does the script include the user story in the automated installer?
7. Migrates:does the script update the database schema if necessary?
8. Reviewed: have customers confirmed that the user story meets their expectations?
9. Fixed:have all known bugs been fixed or rescheduled as their own user stories?
- 10 Accepted: do customers agree that the user story is finished?

### **2 A-To what the gulf of evaluation refers to?**

C-Disparity between what a customer want and what he really need

5

6

## **EXERCISE 2/1**

- 1-What would be a step forward in your team's evolution?
- A. FROM PROFICIENT TO COMPETENT  
 B. FROM FORMING TO STORMING  
 (Forming=the team starts from scratch as new, or a new member joins  
 (Storming=team members compete to have their ideas accepted)  
 C. From self-organized to empowered

## **ANSWER EXERCISE 2-QUESTION 1**

## **FROM FORMING TO STORMING**

7

8

## EXERCISE 2/2

If it is not possible to locate all team members in the same location what are they likely to experience?

- A. HIGHER LEVELS OF CONFLICT
- B. MORE PRIVACY
- C. LESS DIFFICULTY REACHING CONVERGENCE
- D. MORE COMMUNICATION CHALLENGES

9

## ANSWER EXERCISE 2-QUESTION 2

### MORE COMMUNICATION CHALLENGES

DISTANCE MAKES IT EASIER TO IGNORE DISAGREEMENTS  
TRUE CONVERGENCE IS MORE DIFFICULT  
IT DOES NOT NECESSARILY MEAN MORE PRIVACY

10

## EXERCISE 2/3

3. As an agile team leader what do you want to avoid:
- A-prioritizing team goals
  - B-rewards for expected behaviour
  - C-individual motivation
  - D-reward individual goals at the expense of project goals

11

## ANSWER EXERCISE 2-QUESTION 3

### REWARD INDIVIDUAL GOALS AT THE EXPENSE OF PROJECT GOALS

- AN EFFECTIVE TEAM LEADER UNDERSTANDS INDIVIDUAL GOALS AND LEVERAGES THEM FOR THE GOOD OF THE PROJECT

12

## CONCEPTS (NOT DEFINITIONS!) OF:

- |                         |                                  |
|-------------------------|----------------------------------|
| <b>-agile</b>           | <b>-stakeholders</b>             |
| <b>-SCRUM</b>           | <b>-team</b>                     |
| <b>-design thinking</b> | <b>-adaptive planning</b>        |
| <b>-iteration</b>       | <b>-problem facing</b>           |
| <b>-requirement</b>     | <b>-deliverable</b>              |
| <b>-done</b>            | <b>-value&amp;early delivery</b> |

13

## MATCH THE AGILE MANIFESTO VALUES

- |                               |                               |
|-------------------------------|-------------------------------|
| • WORKING SOFTWARE            | • PROCESSES AND TOOLS         |
| • RESPONDING TO CHANGE        | • COMPREHENSIVE DOCUMENTATION |
| • INDIVIDUAL AND INTERACTIONS | • CONTRACT NEGOTIATION        |
| • CUSTOMER COLLABORATION      | • FOLLOWING A PLAN            |

14

## PRINCIPLE

<sup>1</sup> Our highest priority is to satisfy the customer through early and continuous delivery of valuable software

<sup>2</sup> Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage

<sup>3</sup> Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale

<sup>4</sup> Business people and

### SEVERE SUMMARIES SHORTENED VERSION

1. SATISFY CUSTOMERS
2. WELCOME CHANGE
3. DELIVER FREQUENTLY
4. WORK WITH BUSINESS

15

## SEVERE SUMMARIES PRINCIPLE

Build projects about motivated individuals. Give them the environment, support their needs, trust them to get the job done

The most effective method of conveying information to and within a development team is face-to-face conversation

Working software is the primary measure of progress

Agile processes promote sustainable development. The sponsors, developers and users should be able to maintain a constant pace indefinitely

### SHORTENED VERSION

1. MOTIVATE PEOPLE
2. FACE TO FACE COMMUNICATION
3. MEASURE SYSTEMS DONE
4. MAINTAIN SUSTAINABLE PACE

16

## SEVERE SUMMARIES

### PRINCIPLE

Continuous attention to technical excellence and good design enhances agility
Simplicity- the art of maximizing the amount of work not done – is essential
The best architectures, requirements and designs emerge from self-organizing teams
At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behaviour accordingly

### SHORTENED VERSION

1. MANTAIN DESIGN
2. KEEP IP SIMPLE
3. TEAM CREATED ARCHITECTURE
4. REFLECT AND ADJUST

17

## SCRUM OWNERSHIP/RESPONSIBILITY

ITEM	DEVELOPMENT TEAM	PRODUCT OWNER	SCRUMMASTER
1 Estimates			
2 Backlog priorities			
3 Agile coaching			
4 Coordination of work			
5 The definition of "done"			
6 Process adherence			
7 Technical decisions			
8 Sprint planning			

## SCRUM OWNERSHIP/RESPONSIBILITY ANSWERS

ITEM	DEVELOPMENT TEAM	PRODUCT OWNER	SCRUMMASTER
1 Estimates	X		
2 Backlog priorities		X	
3 Agile coaching			X
4 Coordination of work	X		
5 The definition of "done"	X	X	X
6 Process adherence			X
7 Technical decisions	X		
8 Sprint planning	X	X	X

### WHAT IS MOST IMPORTANT FOR YOUR AGILE TEAM TO CONTINUOUSLY FOCUS ON?

- A. GETTING THE RIGHT ANSWERS
- B. UNDERSTANDING THEIR TASKS
- C. DEFINING THEIR TASKS
- D. MEASURING THEIR PERFORMANCE

20

### (A) MOST IMPORTANT FOR YOUR AGILE TEAM TO CONTINUOUSLY FOCUS ON

**B**

GETTING THE RIGHT ANSWERS, DEFINING TASKS, MEASURING PERFORMANCE ARE EMPHASIZED MORE IN INDUSTRIAL WORK THAN KNOWLEDGE WORK

KNOWLEDGE WORKERS INSTEAD FOCUS ON UNDERSTANDING THEIR TASKS

IN SCRUM THE DEFINITION OF DONE IS CREATED WITH THE INPUT OF EVERYONE EXCEPT THE ?

- A. DEVELOPMENT TEAM
- B. PRODUCT OWNER
- C. SCRUMMASTER
- D. PROCESS OWNER

21

22

(A) IN SCRUM THE DEFINITION OF DONE IS CREATED WITH THE INPUT OF EVERYONE EXCEPT THE

### PROCESS OWNER

THE WHOLE TEAM, INCLUDING ALSO THE PRODUCT OWNER AND THE SCRUMMASTER IS RESPONSIBLE FOR CREATING THE SHARED DEFINITION OF DONE

THE PROCESS OWNER IS USUALLY A FUNCTION MOST INVOLVED IN THE PROCESS AND IS NOT A KEY FUNCTION OF SCRUM

### ON A TYPICAL AGILE TEAM, WHO HAS THE BEST INSIGHTS INTO TASK EXECUTION?

- A. PROJECT MANAGER
- B. TEAM MEMBERS
- C. SCRUMMASTER
- D. AGILE COACH

23

24

(A) ON A TYPICAL AGILE TEAM THE BEST INSIGHTS INTO TASK EXECUTION ARE PROVIDED BY:

## TEAM MEMBERS

THE TEAM MEMBERS ARE CLOSEST TO THE WORK AND THEREFORE HAVE THE BEST INSIGHT INTO THE EXECUTION

THIS IS WHY AGILE PROJECT MANAGERS, SCRUMMASTERS, COACHES DEFER TO THE TEAM'S DECISIONS ABOUT HOW BEST TO EXECUTE THE WORK

25

2 TEAM MEMBERS HAVE DIFFERENT OPINIONS ABOUT WHAT NEEDS TO BE BUILT TO MEET THE CUSTOMER'S REQUIREMENTS. THIS IS AN EXAMPLE OF:

- A. THE DEFINITION OF DONE
- B. DIVERGENCE
- C. THE GULF OF EVALUATION
- D. PAIR PROGRAMMING

26

(A) 2 TEAM MEMBERS HAVE DIFFERENT OPINIONS ABOUT WHAT NEEDS TO BE BUILT TO MEET THE CUSTOMER'S REQUIREMENTS. THIS IS AN EXAMPLE OF:  
THE GULF OF EVALUATION

IF TEAM MEMBERS HAVE DIFFERENT IDEAS ABOUT WHAT IT NEEDS TO BE BUILT IT MEANS THEY HAVE DIFFERENT INTERPRETATION OF THE CUSTOMER'S DESCRIPTION OF THE PRODUCT, WHICH IS THE DEFINITION OF A GULF OF EVALUATION

ALTHOUGH THE TEAM MEMBERS MIGHT DISAGREE ABOUT THE DEFINITION OF DONE, THEIR DISAGREEMENT ITSELF IS NOT AN EXAMPLE OF THAT CONCEPT. IF THE QUESTION HAD STATED THAT THE TEAM MEMBERS HAVE DIFFERENT OPINIONS ABOUT HOW TO BUILD A PRODUCT, THEN THAT COULD BE AN EXAMPLE OF DIVERGENCE. PAIR PROGRAMMING INVOLVES WRITING AND REVIEWING THE CODE, NOT DEBATING WHAT TO CODE

27

## THE GULF OF EVALUATION

- The degree of ease with which a user can perceive whether or not the action he performed was successful.
- The gulf is small when the system provides information about its state in an easy form and meets the way the person thinks of the system.

28

HOW WILL USING SHORT ITERATIONS HELP YOUR TEAM?

- A. KEEP THE TEAM FULLY OCCUPIED
- B. KEEP STAKEHOLDERS INVOLVED IN THE PROJECT
- C. KEEP STAKEHOLDERS COMMUNICATION STREAMLINED
- D. LET THE TEAM RELAX AND GET IT ACCLIMATED AT THE START OF THE PROJECT

29

(A) USING SHORT ITERATIONS HELP YOUR TEAM

### KEEP STAKEHOLDERS INVOLVED IN THE PROJECT

SHORT ITERATIONS HELP KEEP STAKEHOLDERS ACTIVELY INVOLVED IN THE PROJECT THROUGH FREQUENT ITERATION PLANNING AND REVIEW MEETINGS.

SHORT ITERATIONS DON'T OPTIMIZE RESOURCE ALLOCATION (=KEEP THE TEAM FULLY OCCUPIED) OR STREAMLINE COMMUNICATION.

AND SINCE THEY MEAN THAT AGILE TEAMS ARE ALWAYS WORKING TOWARD A SHORT TERM TARGET, THEY DON'T GIVE TEAM MEMBERS ANY TIME TO RELAX AT THE START OF A PROJECT

30

AS THE PRODUCT OWNER IN SCRUM WHAT WOULD YOU FOCUS ON?

- A. FACILITATING THE RETROSPECTIVES AND PLANNING MEETINGS
- B. ACTING AS SERVANT LEADER TO THE TEAM
- C. ORGANIZING THE DEVELOPMENT WORK
- D. MAXIMIZING THE VALUE OF THE PRODUCT

31

(A) THE PRODUCT OWNER IN SCRUM WOULD FOCUS ON...

### MAXIMIZING THE VALUE OF THE PRODUCT

THE PRODUCT OWNER'S PRIMARY RESPONSIBILITY IS MAXIMIZING THE VALUE OF THE PRODUCT.

IT IS THE SCRUMMASTER WHO ACTS AS A SERVANT LEADER TO THE TEAM AND IS MOST LIKELY TO FACILITATE THE TEAM'S RETROSPECTIVES AND PLANNING MEETINGS. AGILE TEAM MEMBERS ORGANIZE THEIR OWN WORK

32

## THE TEAM HAS DECIDED AN ITERATION 0 BEFORE STARTING THE PROJECT. WHY?

- A. TO SET UP THE BUILD SERVER FOR THE PRODUCT
- B. TO PRACTICE WORKING TOGETHER BEFORE THE REAL WORK STARTS
- C. TO HOLD PLANNING POKER SESSIONS TO ESTIMATE THE USER STORIES
- D. TO MINIMIZE AS MANY OF THE PROJECT RISKS AS POSSIBLE BEFORE PROJECT STARTS

33

## (A) THE TEAM HAS DECIDED AN ITERATION 0 BEFORE STARTING THE PROJECT BECAUSE...

### **TO SET UP THE BUILD SERVER FOR THE PRODUCT**

ITERATION 0 IS AN OPTIONAL ITERATION THAT THE TEAM CAN USE TO SET THE STAGE FOR THEIR PROJECT EFFORTS. IT IS NOT USED FOR ESTIMATING OR FOR WORKING TOGETHER, SINCE THOSE ACTIVITIES ARE PART IN THE OTHER ITERATIONS.

ALTHOUGH AGILE TEAMS DO TRY TO MINIMIZE RISK EARLY IN THE PROJECT, THEY USUALLY DO THIS BY PRIORITIZING RISK MITIGATION

34

## AS THE SCRUMMASTER OF A TEAM DO YOU EXPECT THAT THE TEAM MEMBERS TO

- A. COME TO YOU WHENEVER THEY MEET A PROBLEM
- B. REPORT ALL THEIR PROBLEMS IN THE DAILY STAND UP MEETINGS
- C. SOLVE MOST PROBLEMS COLLECTIVELY AS THE WORK PROCEED
- D. FIGURE OUT THE BEST SOLUTION ON THEIR OWN

35

## (A) AS THE SCRUMMASTER OF A TEAM YOU EXPECT THAT THE TEAM MEMBERS TO

### **SOLVE MOST PROBLEMS COLLECTIVELY AS THE WORK PROCEED**

AGILE MEMBERS ARE EXPECTED TO SOLVE TECHNICAL PROBLEMS COLLECTIVELY.

THEY DO NOT TRY TO FIGURE OUT SOLUTIONS ON THEIR OWN OR BRING THE PROBLEMS TO THE COACH SINCE THESE APPROACHES WOULDN'T DRAW UPON THE TEAM'S COLLECTIVE EXPERTISE AND DIFFERENT VIEWPOINTS

36

## 10 DEFINITIONS TO BE INTROJECTED AS CONCEPTS

1. VALUE DRIVEN DELIVERY
2. DELIVERABLE
3. EMPIRICAL PROCESS CONTROL
4. PRODUCT OWNER, TEAM, SCRUM-MASTER
5. SPRINT
6. DESIGN THINKING
7. DONE
8. MINIMUM VISIBLE PRODUCT
9. STAKEHOLDERS
10. WASTE

37

## DEFINITIONS TO BE INTROJECTED AS CONCEPTS

### **VALUE DRIVEN DELIVERY**

Decide to prioritize

- value- adding activities
- risk-reducing actions

### **DELIVERABLE**

Achievement of something as a result of a process

38

## DEFINITIONS TO BE INTROJECTED AS CONCEPTS

### **EMPIRICAL PROCESS CONTROL**

Managing work based on observation and experimentation.

### **PRODUCT OWNER, TEAM, SCRUM-MASTER**

PRODUCT OWNER: responsible for the project's outcome in a Scrum team  
TEAM: at least three categories of individuals: the product owner, the developers, the scrum master  
SCRUM-MASTER: coach of the team in self-management and cross-functionality.

39

## DEFINITIONS TO BE INTROJECTED AS CONCEPTS

### **SPRINT**

Short, time-boxed time for a scrum team to complete a set amount of work.

### **DESIGN THINKING**

Human-centered approach to creative problem solving that combines desirable and feasible products ...

40

## DEFINITIONS TO BE INTROJECTED AS CONCEPTS

### DONE

An agreed set of items to be completed before a project can be considered finished

### MINIMUM VISIBLE PRODUCT

Version of a product with enough features to be usable by early customers

## DEFINITIONS TO BE INTROJECTED AS CONCEPTS

### STAKEHOLDERS

Person or organization with an interest in the decision-making of a project.

### WASTE

A bad use of something useful, such as time or money, when there is a limited amount of it

41

42

## THANKS

NEXT

LESSON 11:CONTINUOUS IMPROVEMENT and REVIEW

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## Project Management for IT Projects: part 2

### INNOVATIVE PROJECTS

LESSON 11-May 2025

### CONTINUOUS IMPROVEMENT and REVIEW

Mario Salano

April - May 2025

43

1

## Course agenda (part 2:INNOVATIVE PROJECTS)

1. INNOVATION AND METHODOLOGIES

2. AGILE CONCEPTS

3. AGILE METHODOLOGIES OVERVIEW WITHOUT SCRUM

4. SCRUM

5. LEAN

6. DESIGN THINKING

7. VALUE DRIVEN DELIVERY

8. STAKEHOLDERS,TEAMS,ADAPTIVE PLANNING

9. CASE STUDIES

10. EXERCISES

11. CONTINUOUS IMPROVEMENT AND REVIEW

## AGILE METHODOLOGIES&CONTINUOUS IMPROVEMENT

AGILE APPROACH TO LESSONS LEARNED:

- **DONE CONSCIOUSLY AND INTENTIONALLY.**
- **FREQUENT**
- **ENSURES A REGULAR ADAPTATION AND IMPROVEMENT**

2

3

## THE «LEARN» STEP

IN EVERY AGILE ITERATION THERE IS A LEARN STEP

INSPECTING  
INSPECTING



ADAPTING  
ADAPTING

IMPROVING

## CONTINUOUS IMPROVEMENT LIKE A JOURNEY

- THE «LEARN» STEP INCLUDES THE TEAM'S ITERATION REVIEWS AND RETROSPECTIVES BUT IT IS NOT LIMITED TO THEM
- IT IS AN ONGOING PROCESS OF ENHANCING PROCESSES,PRODUCTS,PEOPLE
- IT IS AN ONGOING PART OF ITERATIVE LIFE CYCLES DRIVING AGILE METHODS

4

5

## KAIZEN=CHANGE FOR BETTER

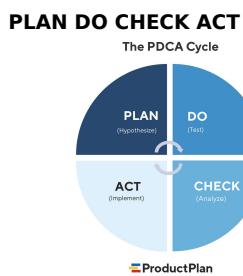
KAIZEN IS THE BASIS FOR AGILE'S WAY OF CONTINUOUS IMPROVEMENT

IT FOCUSES ON ENCOURAGING THE TEAM TO FREQUENTLY IMPLEMENT SMALL INCREMENTAL IMPROVEMENTS

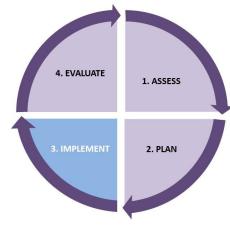
IT IS NOT A SET OF PRACTICES BUT A **MINDSET** THAT HELPS UNDERSTAND AGILE METHODS AS A CONTINUOUS ITERATIVE IMPROVEMENT PROCESS

6

## PDCA CYCLE VERSUS AGILE CYCLE



## PLAN DEVELOP EVALUATE LEARN



7

## CONTINUOUS IMPROVEMENT: PRODUCT

- WHEN WE BUILD IN SMALL INCREMENTS AND GET FEEDBACK, THE PRODUCT EVOLVES TOWARD THE TRUE REQUIREMENTS
- SO THE PRODUCT OR SOLUTION IS INCREMENTALLY BUILT THROUGH A CONTINUOUS IMPROVEMENT PROCESS

8

## VALUE STREAM MAPPING

- THE GOAL OF THIS TECHNIQUE IS THE OPTIMIZATION OF THE FLOW OF INFORMATION REQUIRED TO COMPLETE A PROCESS, THEREBY REDUCING THE TIME IT TAKES TO CREATE VALUE AND ELIMINATING WASTEFUL OR UNNECESSARY WORK
- A VISUAL MAP IS CREATED OF A PROCESS FLOW SO THAT WE CAN IDENTIFY WHERE DELAYS, WASTE, CONSTRAINTS CAN OCCUR
- ONCE WE IDENTIFY THE AREAS TO BE IMPROVED WE LOOK FOR WAYS TO REMOVE THE PROBLEMS AND MAKE THE PROCESS MORE EFFICIENT

9

## VALUE STREAM MAPPING: 6 STEPS

1. IDENTIFY THE PRODUCT TO BE ANALYZED
2. CREATE A VALUE STREAM MAP OF THE CURRENT PROCESS, IDENTIFYING STEPS, QUEUES, DELAYS
3. REVIEW THE MAPS TO IDENTIFY DELAYS, WASTE, CONSTRAINTS
4. CREATE A NEW VALUE STREAM MAP OF THE DESIRED STATE OF PROCESS
5. DEVELOP A ROADMAP TO CREATE THE OPTIMIZED STATE
6. PLAN TO REVISIT THE PROCESS FOR A CONTINUOUS REFINEMENT

10

## PROJECTS-PRE MORTEMS

- A FACILITATED TEAM TECHNIQUE AIMING TO IDENTIFY THE POSSIBLE FAILURE POINTS ON A PROJECT BEFORE THEY HAPPEN TO MINIMIZE THE RELATED RISKS
- THEY ARE ESPECIALLY VALUABLE ON LONG-RUNNING PROJECTS THAT ARE LIKELY TO EXPERIENCE MORE CHANGE THAN SHORT PROJECTS, SIMPLY BECAUSE THEY ARE EXPOSED TO A LONGER HORIZON OF RISK

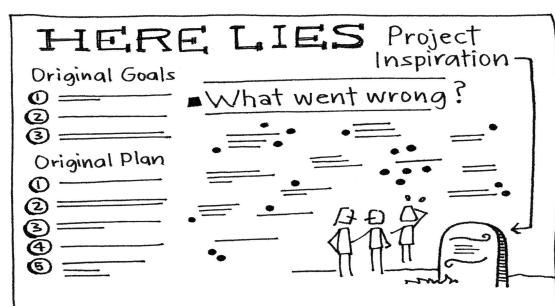
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## STEPS OF THE PRE-MORTEM EXERCISE

1. IMAGINE THE FAILURE
2. GENERATE THE REASONS FOR FAILURE
3. CONSOLIDATE THE LIST
4. REVISIT THE PLAN

12

## PRE-MORTEM



13

## CONTINUOUS IMPROVEMENT:PEOPLE

THIS IS HOW AGILE TEAMS EVALUATE THEMSELVES AND IDENTIFY AREAS OF IMPROVEMENT BY EXAMINING :

- THE RETROSPECTIVE PROCESS
- THE TEAM SELF-ASSESSMENTS

RETROSPECTIVES ARE COMMON TO ALL AGILE METHODS AND SERVE AS THE MAIN TRIGGER FOR DRIVING CHANGES IN THE AREAS OF BOTH PRODUCT AND PEOPLE

14

## RETROSPECTIVES ARE FUNDAMENTAL ABOUT PEOPLE

- BECAUSE THEY ARE MEETINGS HELD FOR AND BY THE TEAM MEMBERS
- RETROSPECTIVE IS A SPECIALIZED MEETING THAT IS HELD AFTER A RELEASE, AFTER AN ITERATION OR EVEN THE ENTIRE PROJECT

15

## RETROSPECTIVES:QUESTIONS

1. WHAT IS GOING WELL?
2. WHAT AREAS COULD USE IMPROVEMENTS?
3. WHAT SHOULD WE BE DOING DIFFERENTLY?

AS PROBLEMS ARE IDENTIFIED,SOLUTIONS ARE BRAINSTORMED

16

## THE BENEFITS OF RETROSPECTIVES

- RETROSPECTIVES PROVIDE IMMEDIATE VALUE TO THE CURRENT PROJECT RATHER THAN JUST DOCUMENTING GOOD ADVICE IN THE HOPES THAT A PROJECT WITH A SIMILAR DOMAIN WILL COME ALONG
- REVIEWING LESSONS LEARNED THROUGHOUT THE PROJECT MAKES THE ISSUES AND LESSONS VERY REAL AND PRESSING

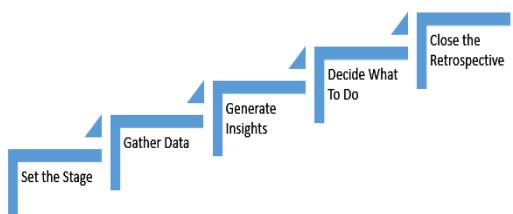
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## BENEFITS OF RETROSPECTIVES

1. IMPROVED PRODUCTIVITY (rework reduction)
2. IMPROVED CAPABILITY (increase of people performing knowledge tasks)
3. IMPROVED QUALITY (removal of causes of defects)
4. IMPROVED CAPACITY (efficiency)

18

## THE RETROSPECTIVE PROCESS:5 STEPS



19

## RETROSPECTIVE TYPICAL TIMING

### Retrospective Meeting Agenda

1. Set the stage (5 minutes)
2. Gather data (10 minutes)
3. Brainstorm ideas (5 minutes)
4. Pick a solution (5 minutes)
5. Conclude with purpose (5 minutes)

## 1:SET THE STAGE

- The goal of the first phase is to bring the mind of the team to the retrospective meeting so they have their focus on the work at hand
- Everyone should be in a state that he feels like he wants to contribute his thoughts and ideas as much as possible.
- People have been working on other tasks just a few minutes ago before they had to stop and go to the retrospective meeting.
- The goal for the leader of the meeting is to bring the focus of the team to the work at hand.

21

## 2.GATHER DATA

- The goal in this phase is to bring the facts of the sprint to the table, so that every participant has the same picture of what happened during the iteration.

This phase is generally splitted up in two steps:

- First:**hard facts and statistics** based on the data the team generated during the sprint.
- Second:**get the insights and personal opinions** from each individual to generate a complete picture.

22

## 3.BRAINSTORM IDEAS (GENERATE INSIGHTS)

- The goal of this phase is to dive deeper in at least one of the subjects from the previous phase. We want to uncover the root cause why certain things happened. And then we want to find options for a possible solution.

This phase can be splitted up in two steps:

- At first we decide which particular subject we want to select. So we have a focus point on one specific subject rather than talking about multiple topics at the same time.
- In the second step we dive deeper into the selected subject to find the root cause.

23

## 4. DECIDE WHAT TO DO (PICK A SOLUTION)

- The goal of this phase is to create action items to improve in the next iterations.
- A list of possible root cause of the problem and potential solutions are identified.
- Now it has to be decided what to do differently in the next Sprint.
- Therefore a list of action items must be issued about what exactly to do differently.
- When creating action items there are a couple of things to be kept in mind:

24

## 4. DECIDE WHAT TO DO:TO KEEP IN MIND

- 1.Make action items actionable**
- 2.Make action items small**
- 3.Don't pick too many action items**
- 4.Make action items visible**
- 5.Try-Measure-Learn Loop**

25

## 5.CLOSE THE RETROSPECTIVE

- The goal of this last phase is to sum up the results of our Retrospective and generally leave a good feeling behind for the participants of the meeting.
- Everyone should leave the room with the feeling that we achieved something useful and that the meeting was worth it.

26

## Perform a Retrospective of the Retrospective Session

- Have an input from all participants what they liked about the Retrospective and what could be improved.
- Ask everyone to write down on a sticky note the one thing they like and one thing they would change about the Retrospective.
- Everyone, one after another, explains what they mean.
- With these activities the team is able to celebrate the results of the retrospective.
- By letting everyone explain their feelings about the meeting the results are even more important for the team.

27

## TEAMWORK HAS A DRAMATIC EFFECT ON ORGANIZATIONAL PERFORMANCE.

- A team that is not working collaboratively can cause unnecessary disruption, failed delivery and strategic failure.
- Nowadays it is almost impossible to avoid being a member of team.
  - it's important for career development to know teamworking **strengths and weaknesses**.

28

## WHY SHOULD WE USE AGILE?

The current info era is focused on **information rather than manufacturing**. Value is moving on the **ownership of knowledge** which creates goods and services through....

### KNOWLEDGE WORKERS.

They are **IT specialists but also engineers, doctors, lawyers, writers, scientists...**becoming a large segment of the workforce of the countries

## AGILE VALUES

**AGILE MANIFESTO COMES DEVELOPING SOFTWARE TO VALUE:**

- 1-INDIVIDUALS AND INTERACTIONS OVER PROCESSES AND TOOLS
- 2-WORKING SOFTWARE OVER COMPREHENSIVE DOCUMENTATION
- 3-CUSTOMER COLLABORATION OVER CONTRACT NEGOTIATION
- 4-RESPONDING TO A CHANGE OVER FOLLOWING A PLAN

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

## HIGH-UNCERTAINTY PROJECTS

# CHANGE COMPLEXITY RISK

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

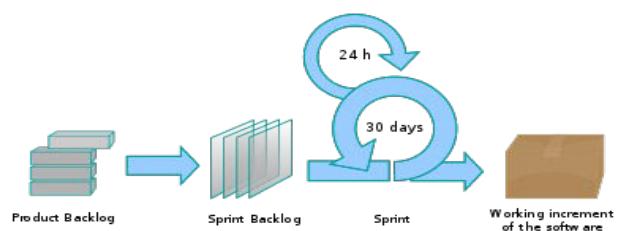
## AGILE MEANING AND GOAL

**NOT TO BE AGILE FOR ITS OWN SAKE  
BUT  
TO PROVIDE CLIENTS WITH A NONSTOP  
FLOW OF**

# VALUE

IT PM PART 2: PROPER SOFTWARE METHODOLOGIES

## SCRUM IN A PICTURE



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33

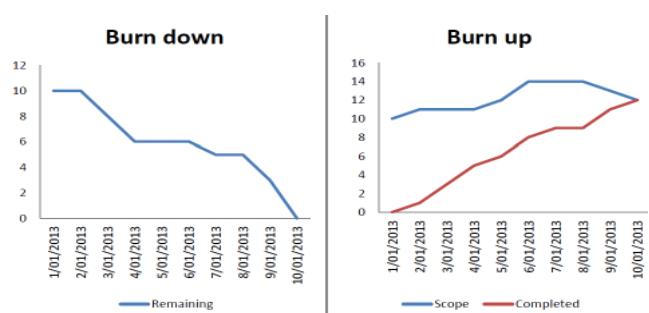
## ROLES IN SCRUM

- 1.PRODUCT OWNER**
- 2.TEAM**
- 3.SCRUM-MASTER**

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34

## BURN CHARTS



## WASTE

**ANY ACTION OR STEP IN A PROCESS THAT DOES NOT ADD VALUE TO THE CUSTOMER.**

ANY PROCESS THAT THE CUSTOMER DOES NOT WANT TO PAY FOR.

36

## DESIGN THINKING

**Design thinking is a tool that applies to improve project and design management**

It was born officially in the 2000 in Stanford-California with focus on people by promoting:

**integration of analysis and creativity**

## MAIN MEANINGS OF VALUE

### 1. VALUE FOR THE CUSTOMER=SACRIFICE

**DIFFERENCE BETWEEN WHAT HE RECEIVES AND WHAT HE GIVES IN COUNTERPART**

### 2. EXCHANGE VALUE=SELLING PRICE

38

## VALUE DRIVEN DELIVERY

- Within Agile approach the effect is to provide a non constant differential value which grows progressively up the achievement of a peak.
- In opposition in the traditional approach the differential value is totally provided at the end of the project

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### EAT YOUR DESSERT FIRST

Value could be defined in terms of monetary benefit, compliance adherence, an answer to the competition in the market etc.

The term value can differ for each client based on what the client is expecting the product/software to accomplish.

In the agile way of project management, always the requirements are prioritized based on what adds more value to customer delivery.

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## STAKEHOLDER&TEAM

### **PEOPLE OVER PROCESSES**

PROJECTS ARE UNDERTAKEN FOR PEOPLE AND BY PEOPLE

## STAKEHOLDERS

«any people who will be impacted or have impact on a project»

**Customers&users,suppliers,business representatives,project managers,norms representatives,quality inspectors,product owners,teams,scrummasters,auditors...**

GETTING THEM INVOLVED IS ESSENTIAL FOR THE SUCCESS OF ANY PROJECT

## DELIVERABLES

KEY ELEMENTS OF THE SCOPE OF A PROJECT

Intermediate results with the following features:

- Uniqueness
- Measurability
- Verifiability.

## BUILDING AGILE TEAMS

- TEAM: A SMALL NUMBER OF PEOPLE WITH COMPLEMENTARY SKILLS; COMMITTED TO A COMMON PURPOSE
- AGILE METHODS RECOMMEND TO KEEP THE DELIVERY TEAM SMALL TO ALLOW THE DEVELOPMENT OF RELATIONSHIPS AND A DIRECT COMMUNICATION

## CONTINUOUS IMPROVEMENT

- FOCUSED ON PRODUCT, PEOPLE, PROCESSES
- IN AGILE THERE IS THE NEED TO APPLY THE BENEFITS OF LEARNING

**AS WE GO ON CURRENT PROJECT**  
And  
**AS SOON AS POSSIBLE**