

DELIVER!

AN EARNED VALUE MANAGEMENT GAME

Dr. rer. nat. Christiane Gresse von Wangenheim, PMP

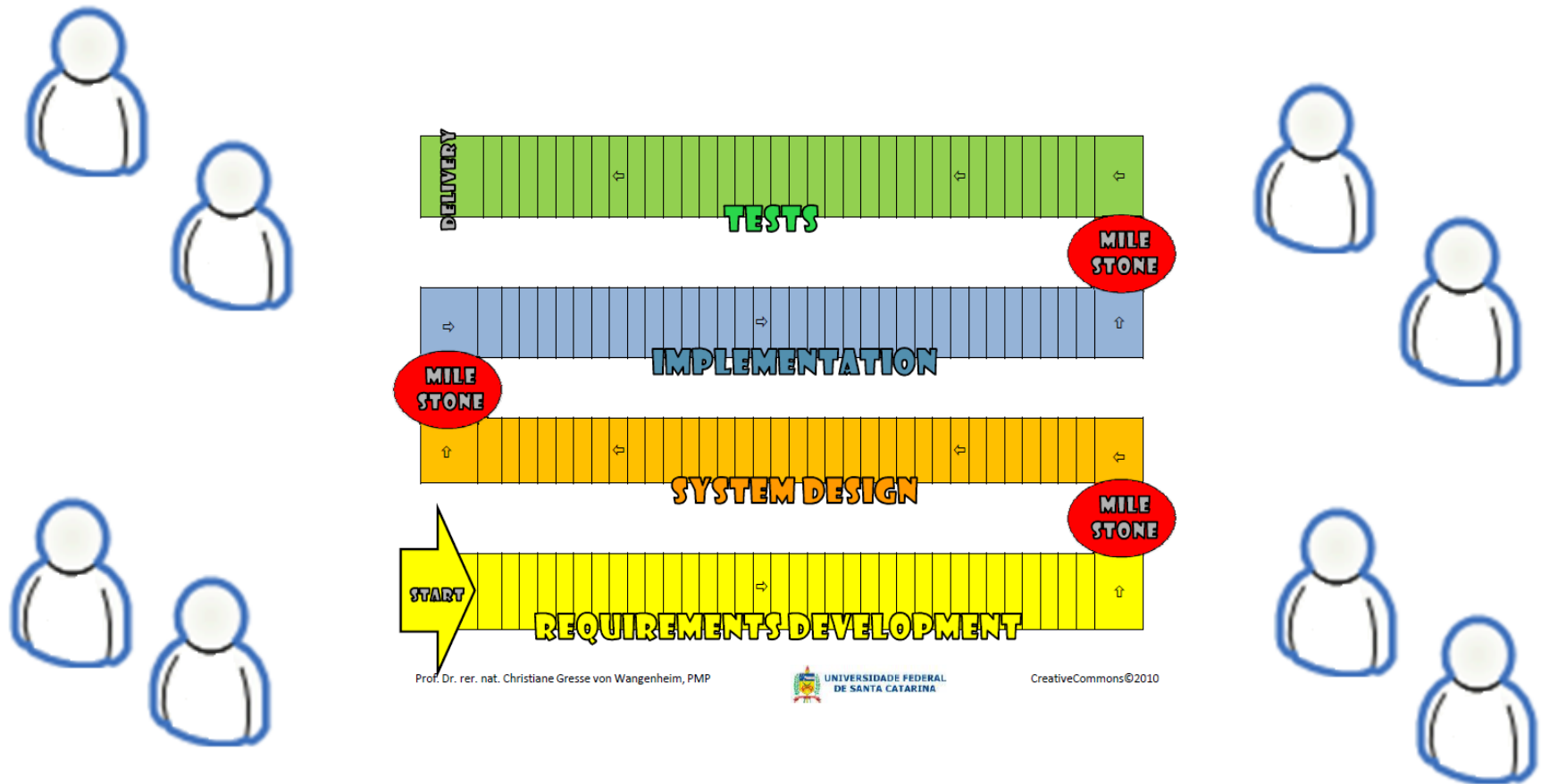


UNIVERSIDADE FEDERAL
DE SANTA CATARINA

Instructions

The objective of the game is to monitor and control the execution of a software project using earned value management.

Played by 4-5 pairs of players.



Prof. Dr. rer. nat. Christiane Gresse von Wangenheim, PMP

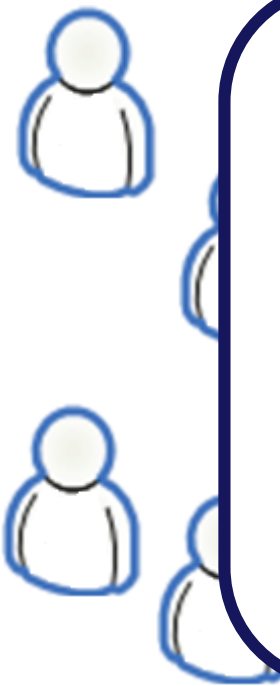
UNIVERSIDADE FEDERAL
DE SANTA CATARINA

CreativeCommons©2010



UNIVERSIDADE FEDERAL
DE SANTA CATARINA

Instructions: The Project



The objective of the project to be executed in this game is the development of a software system to make appointments for the grooming of animals.

Customer: PET SHOP Beleza Ltd.
Total approved cost: \$ 20.000



Instructions: Choose project team

Each pair of players selects its project team members from the pool of human resources available for all players. Only in the beginning of the game and at each milestone, human resources can be acquired/dismissed.

Human Resource

William



Productivity

2

Weekly salary

\$ 300

C. Wangenheim

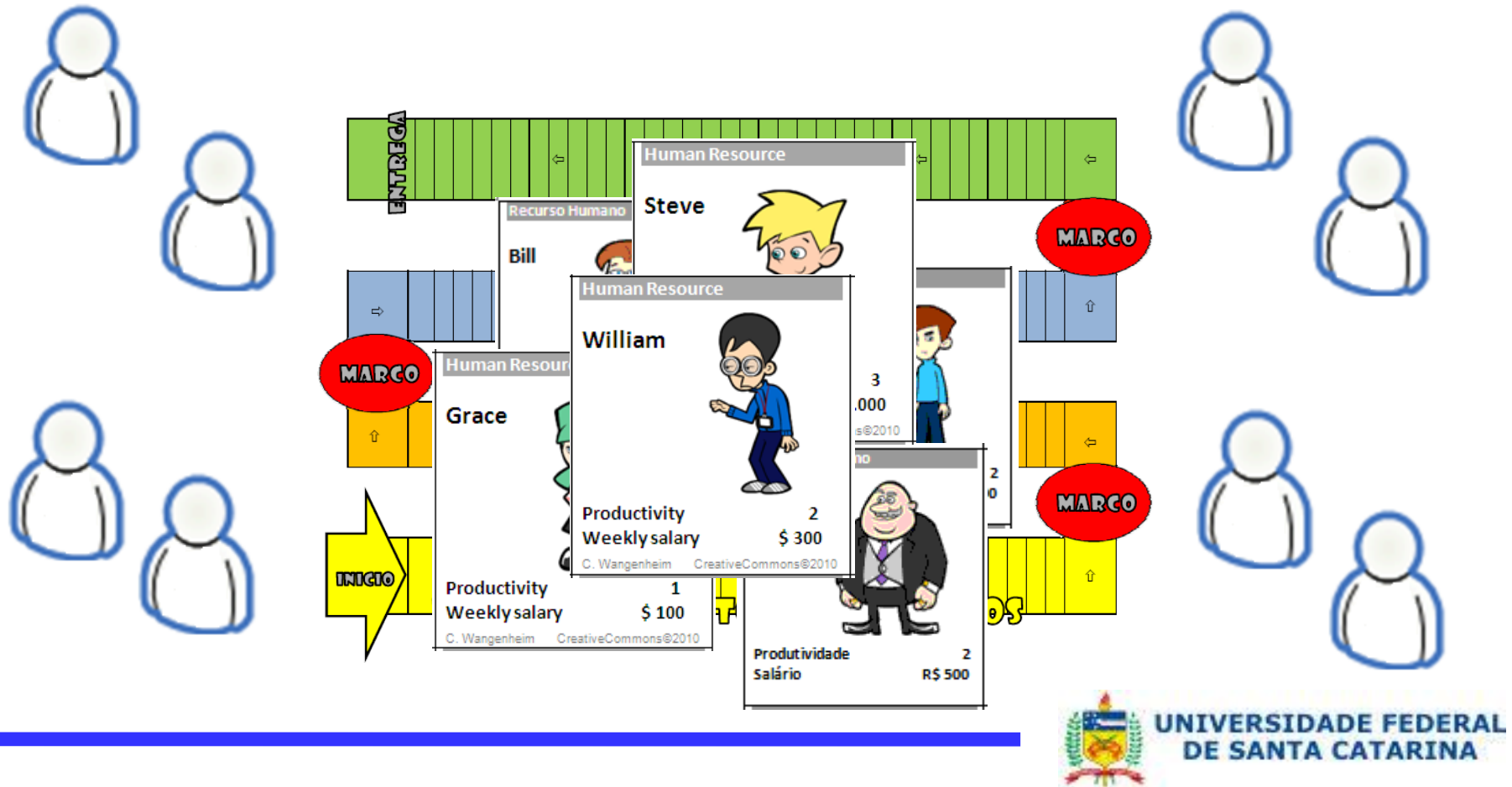
CreativeCommons©2010

Determines the number of spaces which can be advanced in multiplication with the number of the dice.

Determines the weekly salary of this person to be paid in each round.

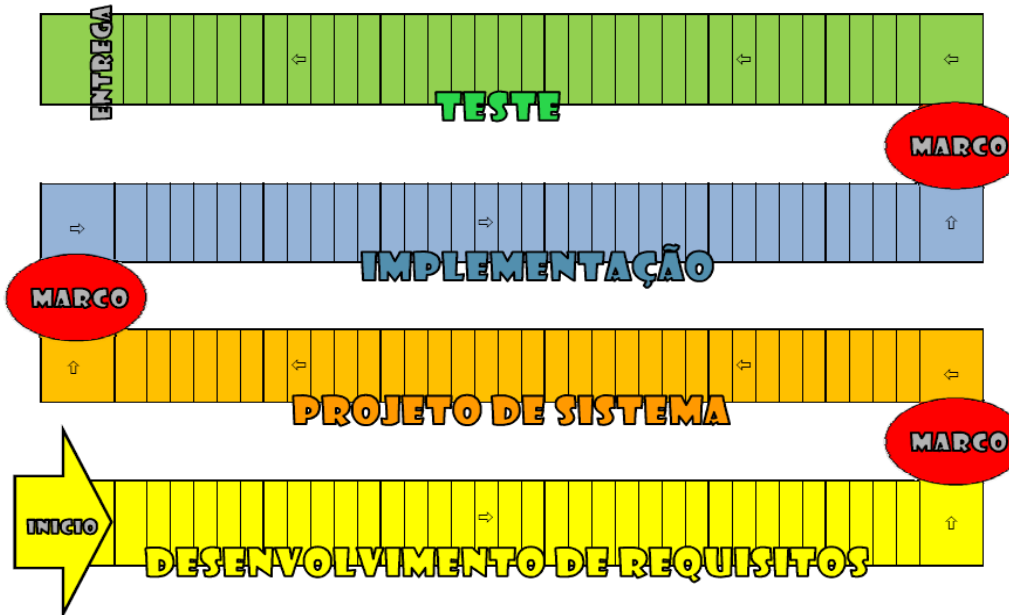
Instructions: Choose project team

Each pair of players selects its project team members from the pool of human resources available for all players. Only in the beginning of the game and at each milestone, human resources can be acquired/dismissed.



Instructions: Financial resources

Each pair of players receives \$ 20.000 to cover the costs of the project.



Instructions: Rules

Each pair of players in turn throws the dice proceeding clockwise. The pair of players with the highest number starts the play.

Dice = 1 – 4?

Productivity factor

Grace 1
+ William 2
+ Steve 3
Productivity 6
* Dice number 1

⇒ Advance 6 space on the board

Human Resource

Grace



Productivity 1
Weekly salary \$ 100

C. Wangenheim CreativeCommons©2010

Human Resource

William



Productivity 2
Weekly salary \$ 300

C. Wangenheim CreativeCommons©2010

Human Resource

Steve

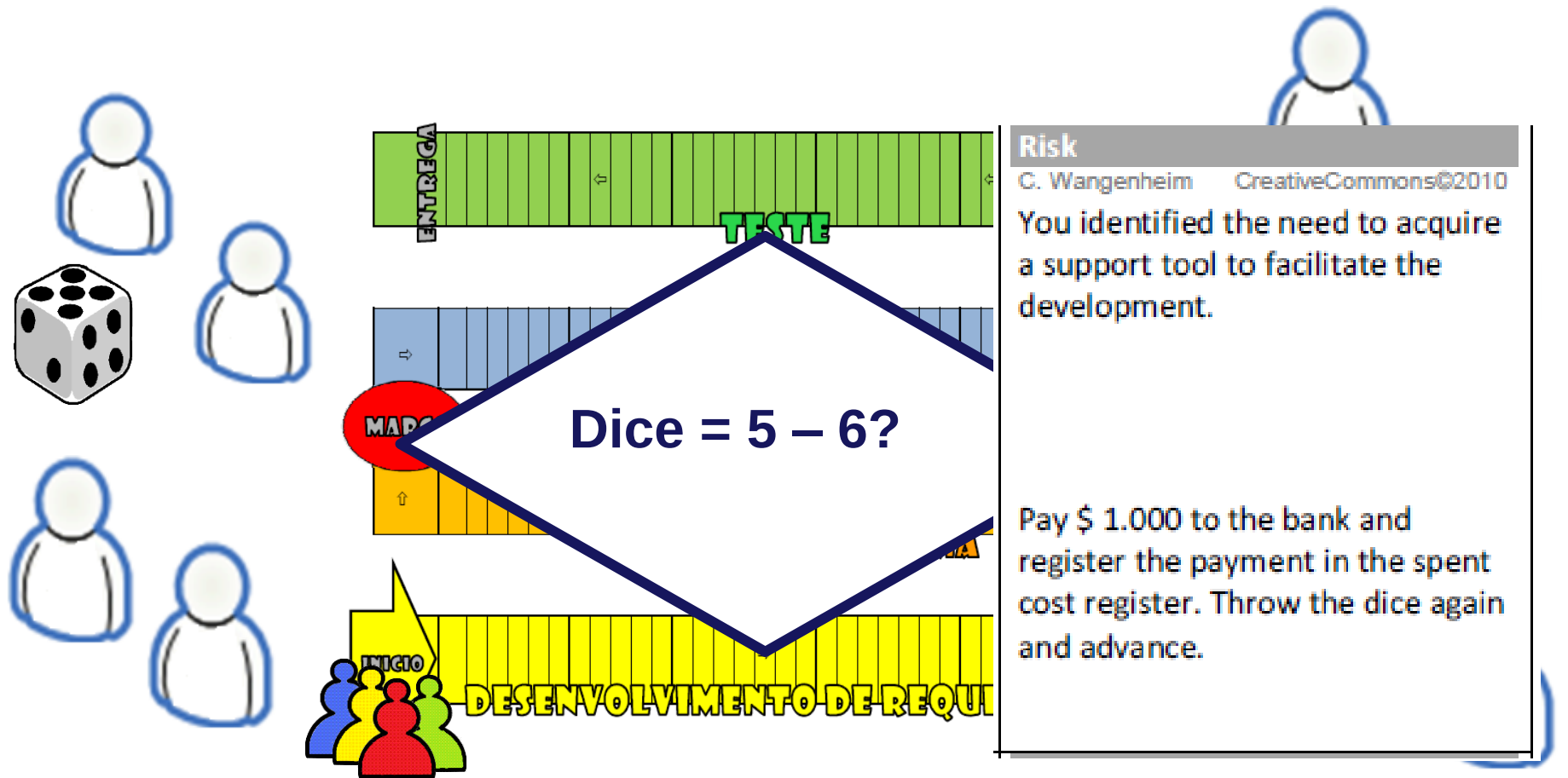


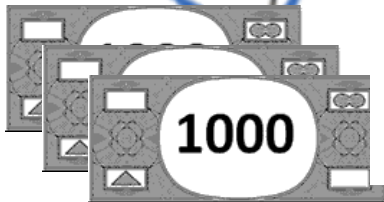
Productivity 3
Weekly salary \$ 1.000

C. Wangenheim CreativeCommons©2010



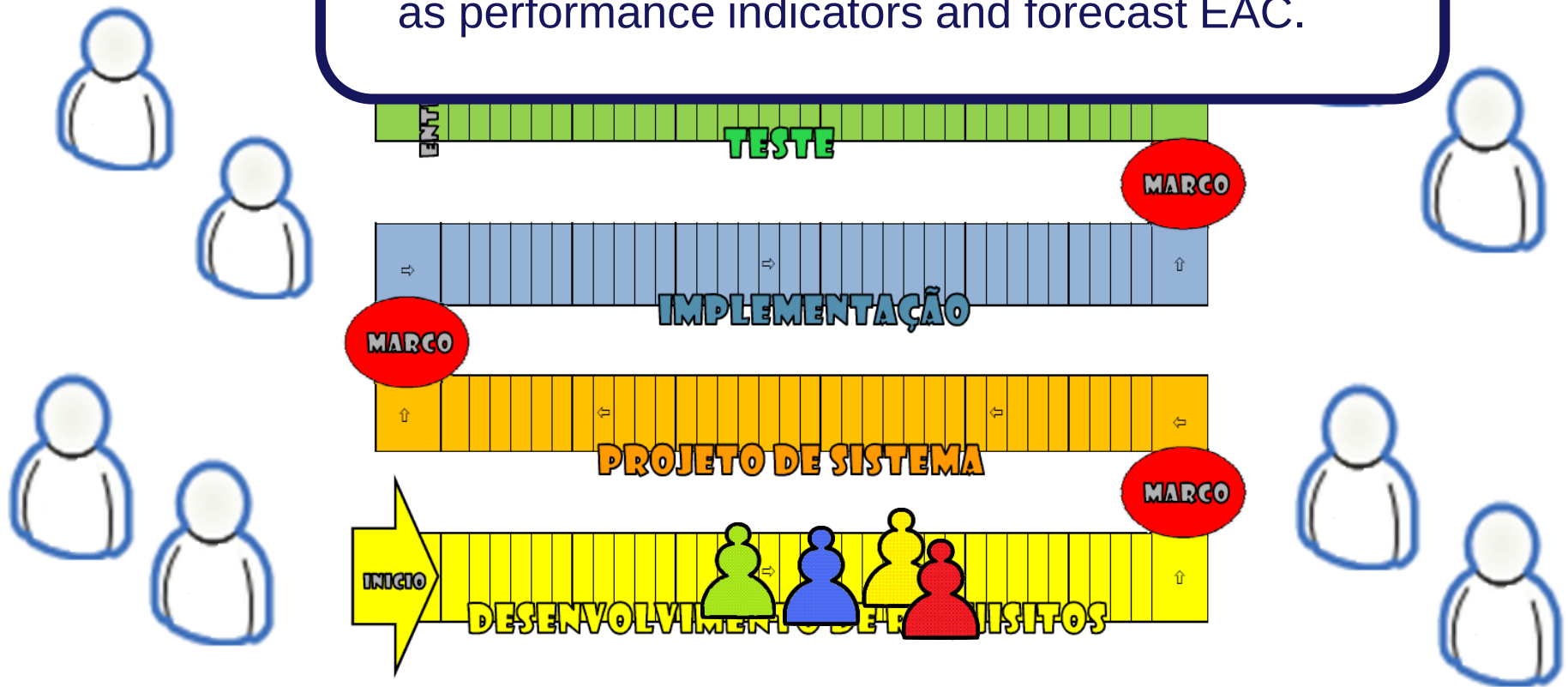
Instructions: Rules



[illegible]

Instructions: Milestones

The milestones at the end of each phase are mandatory stops. The pair of players has to realize a status meeting analyzing SPI and CPI as performance indicators and forecast EAC.

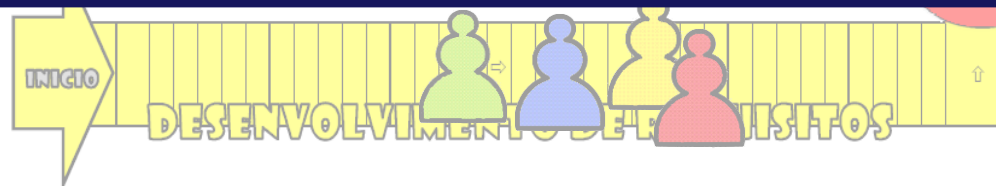


Instructions

A pair of players, who runs out of money is excluded from the game.

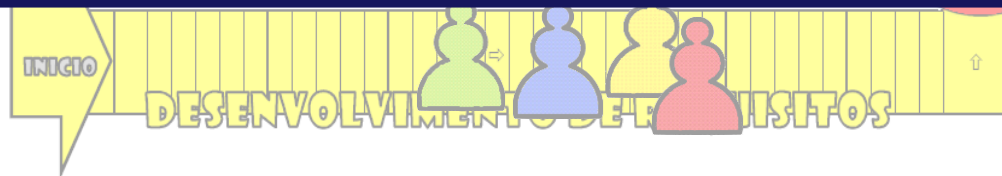


WINNER of the game is the pair of players who first delivers the product to the customer arriving on the space “ delivery” .



Let's start?

1. Form the pair of players.
2. Choose your human resources.
3. Receive \$ 20.000 from the bank.
4. Complete the project plan.



Example: Project planning

PROJECT PLAN

Time planning

	Requirements Development	System Design	Implementation	Testing
No. of weeks = no. of game rounds	3	3	3	3

Estimate the number of game rounds you will need to complete a phase.

Cost planning

Items	Requirements Development	System Design	Implementation	Testing
Human Resources per phase = no. of weeks * Sum of weekly salary of all team members	4.200	4.200	4.200	4.200
Management reserve				

Estimate the cost of human resources per phase.

Human Resource		Human Resource		Human Resource	
Grace		William		Steve	
					
Productivity	1	Productivity	2	Productivity	3
Weekly salary	\$ 100	Weekly salary	\$ 300	Weekly salary	\$ 1.000
C. Wangenheim CreativeCommons©2010		C. Wangenheim CreativeCommons©2010		C. Wangenheim CreativeCommons©2010	

Grace	\$ 100
+ William	\$ 300
+ Steve	\$ 1.000
Cost per week	\$ 1.400
* no. of weeks per phase	3
Total costs per phase	\$ 4.200

Example: Project planning

PROJECT PLAN

Time planning

	Requirements Development	System Design	Implementation	Tests
No. of weeks <i>= no. of game rounds</i>	3	3	3	3

Cost planning

Items	Requirements Development	System Design	Implementation	Tests
Human Resources per phase <i>= no. of weeks * Sum of weekly salary of all team members</i>	4.200			
Management reserve per phase	500			
TOTAL per phase	4.700			700
PROJECT TOTAL (BAC - Budget At Completion)				18.800

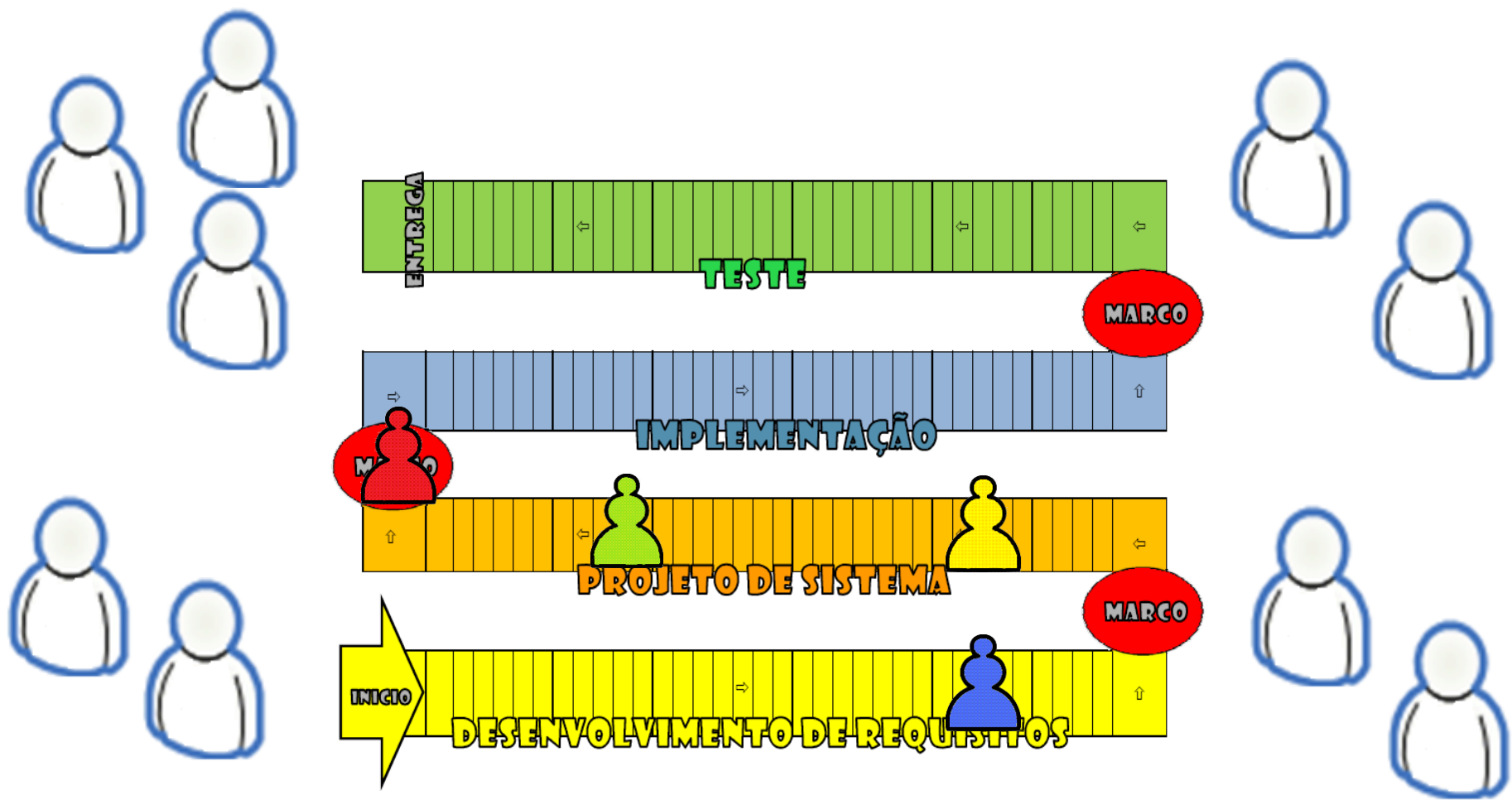
Estimate a management reserve for unknown risks.

Sum up the cost per phase.

Calculate total project budget.



Example: Milestone



Example: Milestone

PERFORMANCE REPORT

	Progress		Cost	Risk	EAC
	Planned	Real	Plan		
Requirements Development	REQ 100% completed	100%	4		8.500
System Design	DESIGN 100% completed	50%			
Implementation	IMPL 100% completed				
Tests	TESTS 100% completed				

If no risk event indicating otherwise has occurred, consider 100% of the work completed with respect to the phase.

Risk

C. Wangenheim CreativeCommons©2010

Your project team progressed much less than expected in this phase.

Keep this card and at the next milestone consider only 50% of the work completed.

Example: Milestone

PERFORMANCE REPORT

	Progress		Cost		Management		
	Planned	Real	Planned	Real	CPI	EAC	
Requirements Development	REQ 100% completed	100%	4.700		1,07	18.500	
System Design	DESIGN 100% completed	50%	4.700				
Implementation	IMPL 100% completed						
Tests	TESTS 100% completed						

Identify the planned cost in the project plan.

PROJECT PLAN

Time planning				
	Requirements Development	System Design	Implementation	Tests
No. of weeks = no. of game rounds	3	3	3	3
Cost planning				
Items	Req. Deve.	System Design	Implementation	Tests
Human Resources per phase = no. of weeks * Sum of weekly salary of all team members	4.200	4.200	4.200	4.200
Management reserve per phase	500	500	500	500
TOTAL per phase	4.700	4.700	4.700	4.700
PROJECT TOTAL (BAC - Budget At Completion)				18.800

Example: Milestone

PERFORMANCE REPORT

	Progress		Cost		Earned Value Management			
	Planned	Real	Planned	Real	EV	SPI	CPI	EAC
Requirements Development	REQ 100% completed	100%	4.700	4.400				18.500
System Design	DESIGN 100% completed	50%	4.700	5.600				

Identify the actual cost.

REGISTER OF SPENT COSTS

Requirements Development	Costs Spent (\$)
	1.400
	1.400
	200
	1.400
	Sum 1.400
System Design	
	1.400
	1.400
	1.400
	1.400
	Sum 5.600

Example: Milestone

PERFORMANCE REPORT

	Progress		Cost		Earned Value Management			
	Planned	Real	Planned	Real	EV	SPI	CPI	EAC
Requirements Development	REQ 100% completed	100%	4.700	4.400	4.700			500
System Design	DESIGN 100% completed	50%	4.700	5.600	7.050			
Implementation	IMPL 100% completed							
Tests	TESTS 100% completed							

Calculate EV

X

+

Cumulative

2.350



Example: Milestone

PERFORMANCE REPORT

	Progress		Cost		Value Management			
	Planned	Real	Planned	Real	PV	SPI	CPI	EAC
Requirements Development	REQ 100% completed	100%	4.700	4.400	4.700	1,00	1,07	18.500
System Design	DESIGN 100% completed	50%	4.700	5.600	7.050	0,75		
Implementation	IMPL 100% completed							
Tests	TESTS 100% completed							

Calculate SPI

Cumulative planned value

9.400



Example: Milestone

PERFORMANCE REPORT

	Progress		Cost			Management		
	Planned	Real	Planned	Real	EV	CPI	CPI	EAC
Requirements Development	REQ 100% completed	100%	4.700	4.400	4.700	1,00	1,07	18.500
System Design	DESIGN 100% completed	50%	4.700	5.600	7.050	0,75	0,71	
Implementation	IMPL 100% completed							
Tests	TESTS 100% completed							

Calculate CPI

Cumulative Actual Cost

10.000



Example: Milestone

PERFORMANCE REPORT

	Progress		Cost		Earned Value			
	Planned	Real	Planned	Real	EV	SPI	SV	EAC
Requirements Development	REQ 100% completed	100%	4.700	4.400	4.700	1,00	1,07	18.500
System Design	DESIGN 100% completed	50%	4.700	5.600	7.050	0,75	0,71	21.750
Implementation	IMPL 100% completed							
Tests	TESTS 100% completed							

Calculate EAC

Cumulative Actual Cost

PROJECT PLAN

Time planning	Requirements Development	System Design	Implementation	Tests
Weeks				
Time rounds	3	3	3	3
Human Resources per phase = no. of weeks * Sum of weekly salary of all team members	4.200	4.200	4.200	4.200
Management reserve per phase	500	500	500	500
TOTAL per phase	4.700	4.700	4.700	4.700
PROJECT TOTAL (BAC - Budget At Completion)				

18.800

Example: Milestone

Example: Assume that you decided to dismiss William.

Human Resource	Human Resource	Human Resource
Grace  Productivity 1 Weekly salary \$ 100 C. Wangenheim CreativeCommons@2010	William  Productivity 2 Weekly salary \$ 300 C. Wangenheim CreativeCommons@2010	Steve  Productivity 3 Weekly salary \$ 1.000 C. Wangenheim CreativeCommons@2010

PROJECT PLAN

Time planning

	Requirements Development	System Design	Implementation	Tests
No. of weeks = no. of game rounds			3	3

Cost planning

Items	Development	System Design	Implementation	Tests
Human Resources per phase = no. of weeks * Sum of weekly salary of all team members	4.200	4.200	4.200 3.300	4.200 3.300
Management reserve per phase	500	500	500	500
TOTAL per phase	4.700	4.700	4.700 3.800	4.700 3.800
PROJECT TOTAL (BAC - Budget At Completion)				18.800 17.600

Update the project plan.

New BAC =
 AC-REQ 4.400
 + AC-PRO 5.600
 + PV-IMPL 3.800
 + PV-TESTE 3.800
 = \$ 17.600



Attribution Non-Commercial Share Alike

You can:

- copy, distribute, exhibit and execute the work
- derive new creations

Under the following conditions:

Attribution — you have to credit the author for the original creation.

Non-Commercial — you cannot use, remix, tweak or build upon the work commercially.

Share alike — you may remix, tweak, and build upon this work non-commercially, as long as they credit you and license their new creations under the identical terms.

For a copy of this license, visit <http://creativecommons.org/licenses/by-nc-sa/2.5/br/> or sent a letter to Creative Commons, 171 Second Street, Suite 300, San Francisco, California, 94105, USA.

