

Save your House, Save the World

Community Incident Management Console (CIMC)



Barcelona Firesolutions Team

Roadmap and User Stories

Call for code, September 2018



IBM Watson
FIRESOLUTIONS

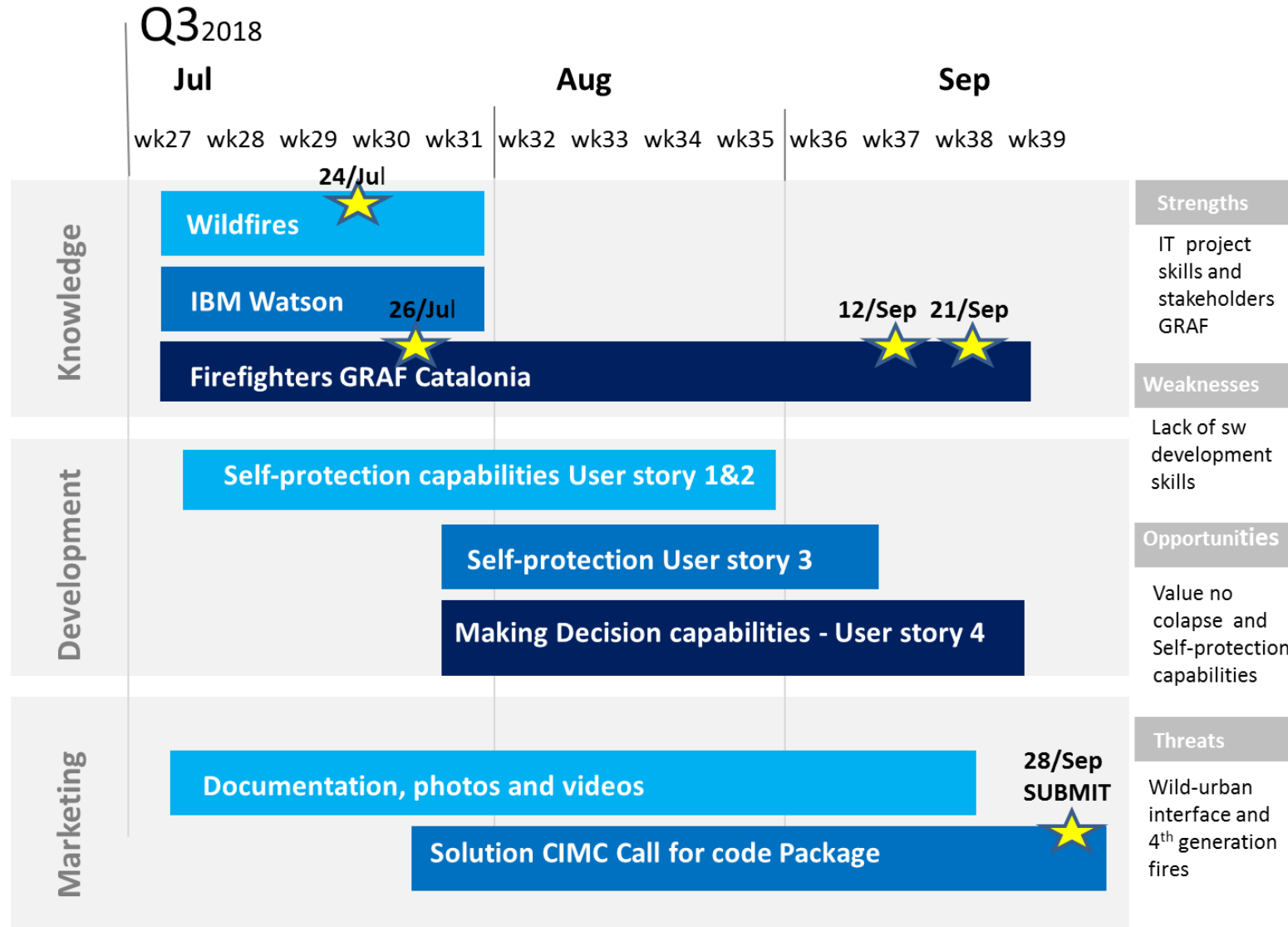
A photograph of a person walking a dog in a forest. The forest floor is covered in purple flowers, and the trees are tall and slender. The scene is peaceful and scenic.

Roadmap and User Stories

CIMC Roadmap Q3'2018

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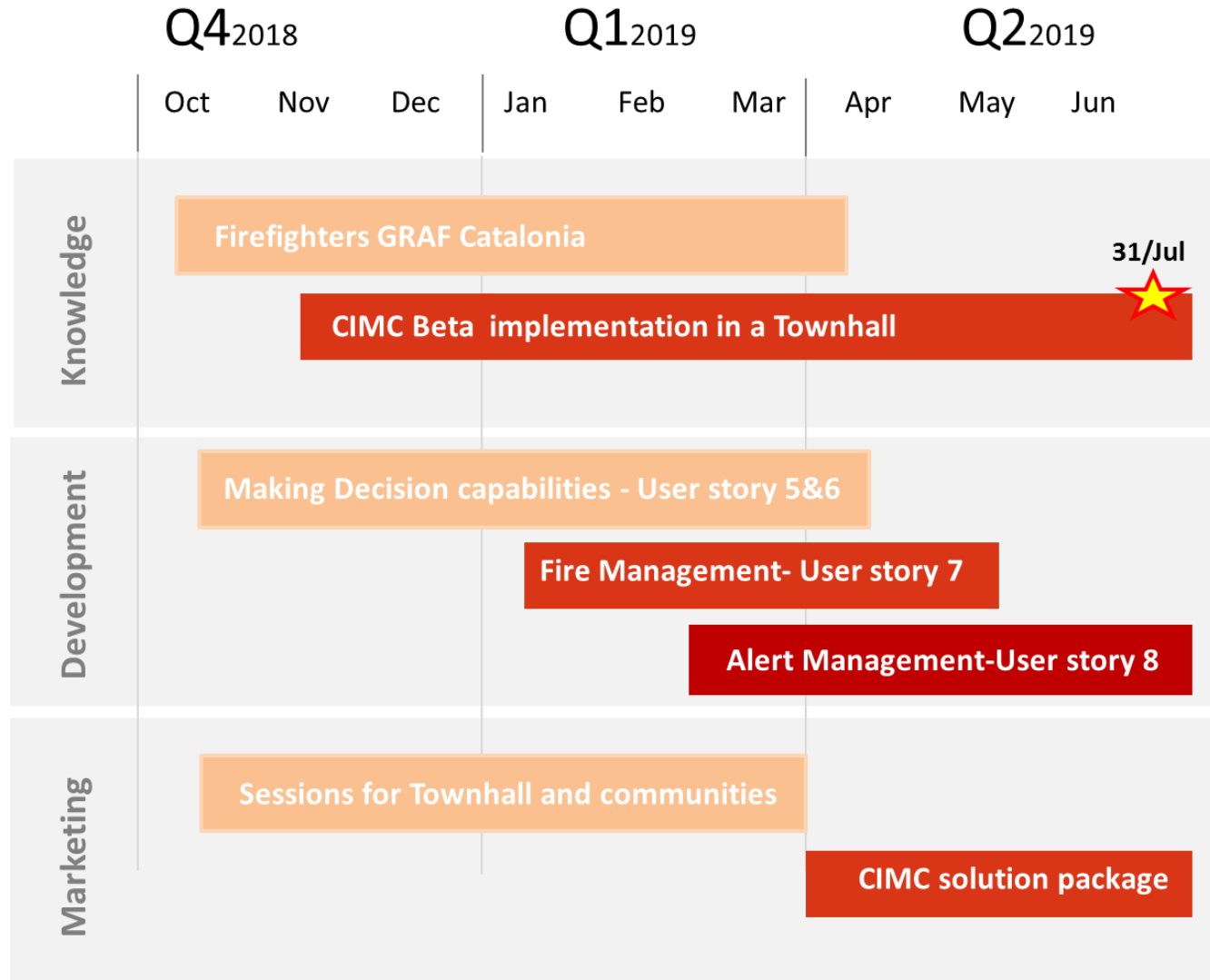
Main Workload areas:
(1) Knowledge, to recollect all the information about Wildfires, IBM Cloud Services and main topics to work with our Stakeholders Catalanian Firefighters GRAF unit;
(2) Development, to design and implement the technical solution with IBM Cloud services;
(3) Marketing, to prepare all the documentation, photos, videos and the final CIMC package to submit to the Call for Code Contest.
Main milestones:
 Meetings with Stakeholders to identify the key topics and to have feedback about the solution progress.

The figure contains the **SWOT analysis**.

GRAF: Grups de Reforç d'Actuacions Forestals. Bombers. Departament Interior de la Generalitat de Catalunya.

CIMC Roadmap Q4'2018-Q2'2019

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Main Workload areas:

- (1) Knowledge**, to implement the solution in a Townhall as a Beta Test;
- (2) Development**, to design and implement the rest of user stories with IBM Cloud services;
- (3) Marketing**, to prepare all the documentation, photos, videos about the CIMC Solution.

Opportunity:
To implement CIMC solution in a village Townhall near Barcelona.

Milestone:
CIMC Solution implementation done in a Beta Community Townhall.

On radar

New opportunity
Beta
implementation
Matadepera
Townhall

CIMC User Stories Self-Protection

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Domain	How it works	User stories	User case Name	Input	Output for user	Output for community/firefighters command center	Type of output value	Technology	IBM CLOUD SERVICES	CIMC application capability	STATUS
Self-protection	(1) Join to the community, complete CIMC FireSolutions test for your house and check fire risk indicator with recommendations to protect your house;	1.1	Community Home Register	15 variables	%Fire Risk_house	%Fire Risk_community	Number	Machine Learning – Regression. (Supervised Learning, i.e. learning where a training set of correctly identified observations is available + Continuous Learning Model Evaluation)	- Watson Studio; - An IBM Cloud Object Storage instance; - An Apache Spark service instance; - An IBM Watson Machine Learning instance; - Db2 Warehouse on Cloud instance.	My Home / User register	Done
		1.2	Recommendation for your home	3 domains	Recommendations_house	Recommendations_community	Text	Machine learning - Domain Knowledge Multiclass classification (Supervised learning, i.e. learning where a training set of correctly identified observations is available)	- Watson Studio; - An IBM Cloud Object Storage instance; - An Apache Spark service instance; - An IBM Watson Machine Learning instance.	Home recommendation	Done
	(2) CIMC provides a daily risk assessment report with fire load indicators about the community and send to FireFighters Command Center;	2	Daily risk assessment report with fire load indicators	Variables fire load	Fire load_house	Fire load_community	Number	Machine learning- Regression & Binary(Supervised learning, i.e. learning where a training set of correctly identified observations is available)	- Watson Studio; - An IBM Cloud Object Storage instance; - An Apache Spark service instance; - An IBM Watson Machine Learning instance.	Risk Assessment Report	Done
Self-protection	(3) CIMC uses daily weather variables to update the risk and it allows users to report fire alerts	3.1	Weather conditions_fire risk	3 variables (T+H+W)	% Fire Risk_weather conditions	% Fire Risk_weather conditions	Number	Machine Learning – Regression. (Supervised learning, i.e. learning where a training set of correctly identified observations is available)	- Watson Studio; - An IBM Cloud Object Storage instance; - An Apache Spark service instance; - An IBM Watson Machine Learning instance.	Fire detection alert	Done
		3.2	Fire alert from users	Fire alert from a user	Fire alert with location	Fire alert with location sent to the overall community	Alert			Send fire alert	Done

CIMC User Stories Making Decision

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Domain	How it works	User stories	User case Name	Input	Output for user	Output for community/firefighters command center	Type of output value	Technology	IBM CLOUD SERVICES	CIMC application capability	STATUS
Making Decision	(4) CIMC uses Watson Machine Learning to help the community to make the hard decision to evacuate or confine in case of fire based on the information from several sources. If the final decision is confining, CIMC would recommend the best nearest house to confine the community.	4.1.	Decision evacuate or confine	Variables related to evacuation (time+ social sentiment Twitter evacuation way)	Recommendation Evacuation Yes/No	Recommendation Evacuation Yes/No and final decision	Alert	Machine learning- Binary	- Watson Studio; - An IBM Cloud Object Storage instance; - An Apache Spark service instance; - An IBM Watson Machine Learning instance.	Evacuation recommendation	Done
		4.2	House to confine	Variables related to confinement	The best and nearest house to confine	The best and nearest house to confine and final decision	Alert	Machine learning -Multiclass classification	- Watson Studio; - An IBM Cloud Object Storage instance; - An Apache Spark service instance; - An IBM Watson Machine Learning instance.	Evacuation recommendation	Done
Making Decision	(5) CIMC uses forecast data from Firefighters to evaluate if houses are in the red/hot area or not	5	Fire zone evaluation	GPS information about the forecasted area affected by the fire	Yes/No (House in the hot area?)		Alert	Roadmap-priority 1			
	(6) CIMC uses information about alternative evacuation routes and reformulate the decision evacuate/confine	6	Alternative evacuation road	Webservice providing alternative route	Recommendation Evacuation Yes/No		Text	Roadmap-priority 2			

CIMC User Stories Fire Management

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Domain	How it works	User stories	User case Name	Input	Output for user	Output for community/firefighters command center	Type of output value	Technology	IBM CLOUD SERVICES	CIMC application capability	STATUS
Fire Management	(7) CIMC recollects information about users to calculate the number of people in red/hot zone	7	Number of people in red zone	Feedback from community users	Number of people in red zone and location	Number of people in red zone and location	Number	Roadmap-priority 3			
Alert Management and monitoring	(8) Other services (roadmap)	8.1	Fire detection alert1	Photos from hou	Alert to the house owner	Alert to the community comm	Alert	Object detection	Fire detection alerts		Roadmap-priority 4
		8.2	Fire detection alert2	Twiter	Alert to the house owner	Alert to the community command center	Alert	Object detection			
		8.3	Fire detection alert3	Recommendati ons from Firefighters	Recommendations to the house owner	Recommendations to the community command center	Text	Machine learning			
		8.4	Tex to voice	Text	Voice	Voice	Voice	Text to voice service			
		8.5	Voice to text	Voice	Text	Text	Text	Voice to text service			
		8.6	Data in Tetra network emergency channels	Data	Data	Data	Data	Data through Tetra network	Roadmap-priority 5		

User Story 1 – Community Home Register

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User Register



Answer 15
questions
about your
house

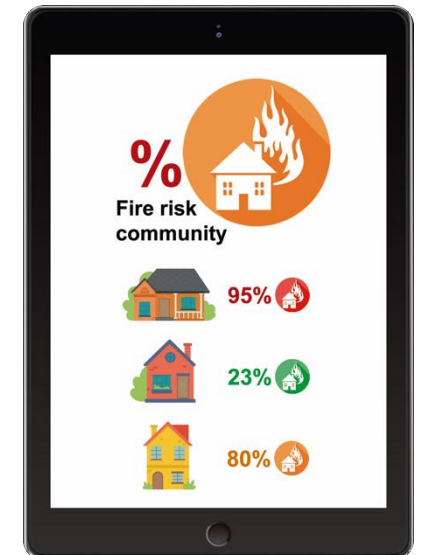
Output for User



N User Register



Output for
Community&Firefighter
Comand Center



User Story 2 — Fire load

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User Register



Answer variables fire load



N User Register



Output for
Community&Firefighter
Comand Center

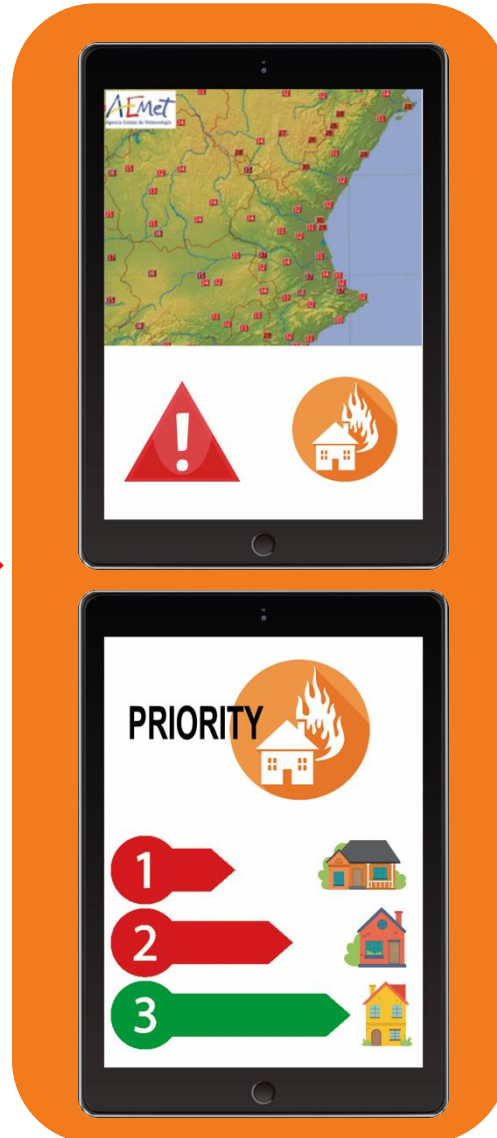
LIST OF HOUSES BY PRIORITY
Related to Fire Load



User Story 4 – Decision Evacuate or confine

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Output for User



Evacuation information:

- Time to get the secure area following evacuation route
- Sentiment people on the evacuation route

Result: To Evacuate or to Confine

If confine

Result: The best house to confine