**WORLD PHENOMENA** (not shared with the Machine):

**WEATHER**

* WP1: : In the district (or mandal) X, in the day YYYY/MM/DD, the weather is WW

// WW = sunny | partially cloudy | cloudy | foggy | rainy | stormy | tornado | hurricane

* WP2: In the district (or mandal) X, the maximun, minimum and average temperatures in the day YYYY/MM/DD are TMAX, TMIN and TAVG
* WP3: In the district X (or mandal) , the millimeters of rain fallen in the day YYYY/MM/DD are RR
* WP4: In the district X (or mandal), the average wind of the day YYYY/MM/DD has a speed of VV km/h and a direction DR

// DR = N | W | S | E | NW | NE | SE | SW

* WP5: In the district X (or mandal), the average humidity of the day YYYY/MM/DD rate is HR
* In the district X (or mandal), the average atmospheric pressure of the day YYYY/MM/DD rate is AP millibars
* WP6: The soil moisture on a terrain T is SM% (soil moisture = mass of water/mass of solid particles in the terrain – or volume, depending on the definition)

**FARMERS**

* WP6: A farmers owns | is responsible for a plot of land of area A in the district D
* WP7: A terrain is culivated with (NP plants of) product P // not for all products is possible to count the number of plants es cotton -> for there products is sufficient to count the area of the field
* WP8: A farmer during the day YYYY/MM/DD plants NS seeds or NP plants of product PR
* WP9: A farmer during the day YYYY/MM/DD harvests a quantity of K kgs of product PR
* WP10: A farmer during the day YYYY/MM/DD uses a quantity FQ of fertilizer on a plant P
* A farmer waters innaffia a mano (manual irrigations)
* WP11: The water irrigation system of a terrain TT spreads a quantity WI of water during the day YYYY/MM/DD
* A farmer faces a problem in his work

**POLICY MAKERS**

* A farmer is granted an incentive
* A farmer is contacted by a policy maker to take part into initiatives to provide his best practices to others // attraverso dreams o no?
* A policy maker is given a password by the Telangana administration // specificare meglio l’ente

// poiché l’account policy maker non è per tutti

**AGRONOMISTS**

* An agronomist is responsible for an area A of terrains
* An agronomist is given a password by the Telangana administration // specificare meglio l’ente

// poiché l’account agronomist non è per tutti

* An agronomist visits a farm

**SHARED PHENOMENA:**

**WEATHER FORECASTS**

* SP1: The forecast indicates that in the district | mandal X, in the day YYYY/MM/DD, the weather will be WW

// WW = sunny | partially cloudy | cloudy | foggy | rainy | stormy | tornado | hurricane

* SP2: The forecast indicates that in the district | mandal X, in the day | week | month the maximun, minimum and average temperatures will be TMAX, TMIN and TAVG
* SP3: The forecast indicates that in the district | mandal X, in the day | week | month the millimeters of rain fallen will be RR
* SP4: The forecast indicates that in the district | mandal X, in the day | week | month , the average wind will have a speed of VV km/h and a direction DR

// DR = N | W | S | E | NW | NE | SE | SW

* SP5 : The forecast indicates that in the district | mandal X, in the day | week | month , the average humidity rate will be HR
* SP5 : The forecast indicates that in the district | mandal X, in the day | week | month , the average pressure will be AP millibars

**WEATHER REPORTS**

* SP6: The weather reports indicate that in the district | mandal X, in the day YYYY/MM/DD, the weather was WW

// WW = sunny | partially cloudy | cloudy | foggy | rainy | stormy | tornado | hurricane

* SP7: : The weather reports indicate that in the district | mandal X, in the day | week | month the maximun, minimum and average temperatures in the day YYYY/MM/DD were TMAX, TMIN and TAVG
* SP8: The weather reports indicate that in the district | mandal X, in the day | week | month the millimeters of rain fallen in the day YYYY/MM/DD were RR
* SP9: The weather reports indicate that in the district | mandal X, in the day | week | month , the average wind of the day YYYY/MM/DD had a speed of VV km/h and a direction DR

// DR = N | W | S | E | NW | NE | SE | SW

* SP10: The weather reports indicate that in the district | mandal X, in the day | week | month, the average humidity of the day YYYY/MM/DD rate were HR
* The weather reports indicate that in district | mandal X, in the day | week | month, the average atmospheric pressure was AP millibars
* SP11: The soil moisture sensor detects a soil moisture on a terrain T of SM% (soil moisture = mass of water/mass of solid particles in the terrain – or volume, depending on the definition)

**FARMERS DATA**

* A farmer inserts in DREAMS his personal data (name, surname, contacts)
* SP11: A farmers inserts in DREAMS the location and the area of the plot of land that he owns | is responsible of
* SP12: A farmer inserts in DREAMS that in his piece of land, an area A is devoted to the cultivation of product P (and inserts number of plants) // not for all products is possible to count the number of plants es cotton -> for there products is sufficient to count the area of the field
* A farmes logs in
* SP13: A farmer inserts in DREAMS that during the day YYYY/MM/DD he has planted NS seeds or NP plants of product PR
* SP14: A farmer inserts in DREAMS that during the day YYYY/MM/DD he has harvested a quantity of K kgs of product PR
* SP15: A farmer inserts in DREAMS during the day YYYY/MM/DD that he has used a quantity FQ of fertilizer on a plant P
* SP16: The water irrigation system sensor of a terrain TT measures that a quantity WI of water has been spread during the day YYYY/MM/DD // we know the location of sensors -> put in DA
* SP17: A farmer inserts in DREAMS that that during the day YYYY/MM/DD he has watered a piece of land PL with a quantity of water WI
* A farmer visualizes the weather forecasts relative to its land location
* A farmer visualizes a suggestion regarding a crop to plant in its land
* A farmer visualizes a suggestion regarding a fertilizer to use
* A farmer inserts into DREAMS data regarding a problem he has
* A farmer issues a request for help to an agronomist
* A farmer issues a request for help to another farmer
* A farmer responds to a request for help received by another farmer
* A farmer shares a post on a discussion forum // inserire anche risposta a post come shared phenomenon? O è un dettaglio implementativo?

**POLICY MAKERS**

* A policy maker inserts his personal data (name, surname, contacts) into DREAMS when signing up
* A policy maker logs in
* DREAMS shows statistics regarding farmers (type of products, amount produced, fertilizers, watering, location…)
* DREAMS shows a list of best performing farmers, considering also resilience towards metereological adverse events
* DREAMS shows a list of worse performing farmers
* DREAMS shows correlations between agronomists and good farmers interventions and farmers statistics // punto da riguardare
* A policy maker selects a farmer from a list of best performing farmers and saves it as well performing farmer
* A policy maker selects a farmer from a list of worst performing farmers and saves it as badly performing farmer

**AGRONOMISTS**

* An agronomists signs in the DREAMS system
* An agronomist inserts the area A of terrains he is responsible of into the DREAMS system
* An agronomist inserts his personal data (name, surname, contacts) into the DREAMS system
* An agronomist receives a request for help from a farmer
* An agronomist replies to a request for help from a farmer
* An agronomist visualizes the weather forecast for the area he is responsible of
* An agronomist visualizes a list of the best performing farmers in the area he is responsible of
* DREAMS computes a daily plan for an agronomist to visit the farms he is responsible of
* An agronomist updates his daily plan for visiting farms
* At the end of a work day, an agronomist confirms the execution of his daily plan for visiting farms
* At the end of a work day, an agronomist specifies a deviation for his daily plan for visiting farms
* An agronomist inserts into the system information regarding a visit to a farm

**GOALS**

* The policy makers are able to identify best performing farmers, in particulare w.r.t resilience toward climatic adverse events, as they will be given incentives and will be asked to provide help to other farmers
* The policy makers are able to identify worst performing farmers, as they need to be receive help for improving their activity
* The policy makers are able to understand if the initiatives involving agronomists and best performing farmers have a good impact on the work of the farmers
* Farmers are able to visualize data weather forecasts regarding their piece of land
* Farmers receive personalized suggestions about crops to plant
* Farmers receive persnalized suggestions about fertilizers to use
* Farmers are able to insert data in the system about their production and any problem they encounter
* Farmers are able to communicate via a forum // discussioni
* Farmers are able to request for help to agronomists and other farmers
* Agronomists are able to visualize weather forecast for the area they are responsible of
* Agronomists are able to identify the best performing farmers in the area they are responsible of
* Agronomists have a daily plan of visits to farms, where each farm has to be visited at least twice a year, but worst performing farms are visited more often; they can confirm the execution of a plan at the end of the day or specify deviations
* Farmers sono aiutati nella loro produzione e scambiano discussioni

**DOMAIN ASSUMPIONS**

**WEATHER**

* TSDPS (Telengana State Develompent Planning Society) provides weather forecasts and reports, which are available to the DREAMS system // come?
* If the weather reports indicates that in the district | mandal X, in the day YYYY/MM/DD, the weather was WW, it was indeed WW

// WW = sunny | partially cloudy | cloudy | foggy | rainy | stormy | tornado | hurricane

* The maximum, minimum and average temperatures in the weather reports have a precision of TP°C
* The rainfall in the weather reports has a precision of TR mm
* The wind speed in the weather reports has a precision of WSP km/h
* The wind direction in the weather reports has a precision of WDP km/h
* The average humidity in the weather reports has a precision of HP%
* The pressure in the weather reports has a precision of PP millibars
* Water irrigation system provide data to the DREAMS system in the format \_\_\_, with a precision of WIP%
* Soil moisture sensors are installed \_\_ km2 (// balzabile, possiamo anche non assumerlo), and provide data with a precision of SM%

**FARMERS**

* Each farmer owns a device connected to the Internet network // requirement vago, ma secondo me va bene così
* Farmers inserts correctly their personal data and data regarding their piece of land
* Farmers insert correctly data regarding their production (harvest, watering, fertilizers…)
* Rispondono alle richieste di aiuto
* Opera o su tutto o su nulla (per un certo prodotto)

**POLICY MAKERS**

* Each policy maker owns a personal computer, connected to the Internet network and with a browser installed
* Policy makers are given a password – associated to their mail – by the Telengana agriculture department
* Policy makers contact best performing farmers (following an approved protocol established by Telengana government) for granting incentives and asking to collaborate for providing help to other farmers // eliminabile

**AGRONOMISTS**

* Each agronomist owns a device connected to the Internet network and with a browser installed // oppure un’applicazione mobile? Oppure entrambe?
* Agronomists are given a password – associated to their mail – by the Telengana agriculture department
* Agronomists insert correct information regarding their visits to the farms
* Agronomists reply to help requests issued by farmers

**REQUIREMENTS**

* The DREAMS system is able to store data regarding users
* The DREAMS system is able to store data regarding the production of a farmer
* The DREAMS system is able to store data from the water irrigation system
* The DREAMS system is able to store data from the soil moisture sensors
* The DREAMS system is able to store data inserted by agronomists regarding their visit to the farms
* The DREAMS system is able to compute a list of N best performing farmers (in a certain area A)
* The DREAMS system is able to compute a list of N best performing farmers, also taking into account resilience towards adverse metereological events
* The DREAMS system is able to compute a list of N worst performing farmers
* The DREAMS system is able to save the identification of a farmer as well or badly performing farmer done by a policy maker // da esprimere meglio
* The DREAMS system is able to show statistics about production of farmers
* The DREAMS system is able to identify possible correlations between improvements in farmers work and activities involving agronomists and best performing farmers
* The DREAMS system is able to show weather forecasts relative to a certain area
* The DREAMS system is able to suggest crops to plant to farmers
* The DREAMS system is able to suggest fertilizers to use to farmers
* The DREAMS system provides a forum where farmers can discuss
* The DREAMS system allows a farmer to visualize agronomists available in his area
* The DREAMS system allows a farmer to request for help to an agronomist in his area
* The DREAMS system allows an agronomist to reply to a request issued by a farmer
* The DREAMS system allows a farmer to visualize best performing farmers
* The DREAMS system allows a farmer to request for help to a best performing farmer
* The DREAMS system allows a farmer identified as best performing to reply to a request issued by another farmer
* The DREAMS system provides agronomists with a daily plan for visiting farms, where each farm in the area assigned to the agronomist is visited at least twice a year
* The DREAMS system enforces that in the daily plan of agronomists, visits to worst performing farmers are scheduled more often than twice a year

// facciamp scegliere agli agronomists la frequenza? Lo mettiamo come requisito o no?

* The DREAMS system allows agronomists to confirm the execution of the daily plan at the end of the day
* The DREAMS system allows agronomists to specify deviations from the daily plan at the end of the day

DOMANDE/IDEE METEO:

* Zone meteo? District/mandal?
* Intervallo di tempo per il meteo? Ora – giorno? -> forse diversi a seconda della realtà – previsioni – report // v. sito
* Inserire altri parametri? (oltre a: indicazioni generali, temperature max, min, avg, umidità, mm di pioggia, velocità e direzione del vento, pressione, umidità del suolo)

DOMANDE/IDEE FARMERS:

* Granularità tempo dei dati? Giorno – settimana – mese?
* Rappresentazione terreno: nella UI potrebbe essere una figura, nel back end sono dei dati (scorrelati dall’effettivo posizionamento dei prodotti nei terreni – ma forse è importante? In realtà non credo)
* Non tutti i farmer hanno un water irrigation system intelligente -> chi non ce l’ha inserisce i dati a mano
* Altre info? Es arare, altre pratiche di agricoltura… ?
* Si possono irrigare/mettere fertilizzanti solo su una parte di campo oppure si devono mettere su tutto?
* Richieste di aiuto: a una persona specifica o ad un ruolo?
* Un farmer ha una sola fattoria oppure di più? Magari si fa un account per ogni fattoria che possiede

DOMANDE/IDEE POLICY MAKERS:

* Sicuramente i policy makers visualizzano dati aggregati e “classifiche”, ma possono anche visualizzare i dati specifici e dettagliati di un singolo farmer (?) SI
* Iniziative in cui i farmers forniscono best practices -> dentro o fuori dal sistema?

Dentro = best farmers a cui far domande in una chat (anziché farle a chiunque)

Fuori = iniziative collettive, visite ad altri agricoltori -> come inserire questi dati nel sistema? Servono per analizzare se queste iniziative hanno avuto successo (si potrebbe inserire un calendario, e per ogni data la lista dei presenti, un rating da parte di chi ha frequentato)

* Assumo che per aiutare i farmers che hanno cattive performance gli si mandi gli agronomi più spesso
* Scadenza identifiazione worst e best performing farmers

DOMANDE/IDEE AGRONOMISTS:

* Dati riguardanti le visite alle fattorie? Di che tipo? Valutazioni riguardo diversi aspetti, testo
* Devono essere in grado di vedere i best farmers -> come si relaziona questa cosa con i policy makers? Sono anche loro in grado di assegnare il titolo di best farmer?
* Aggiungerei che gli agronomists dovrebbero essere in grado di “eliminare” lo status di worst performing farmer quando lo ritengono necessario

DOMANDE/IDEE DOMAIN ASSUMPTIONS

* Precisione dati meteo da definire (nel sito dato non è specificata) (?)
* Interazione con previsioni del tempo e reports

NOTIFICHE A FARMER QUANDO ARRIVANO GLI AGRONOMISTS