Product Development

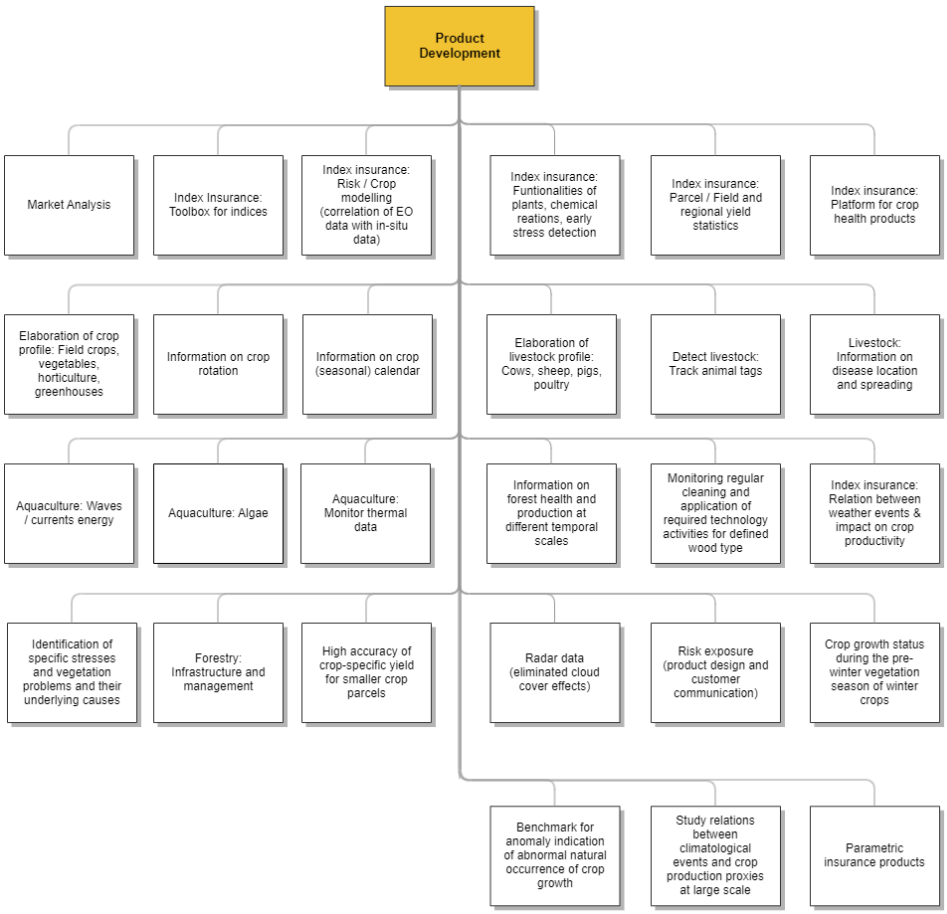
Description of business process

Product Development is a complex of activities that insurer undertake to develop and introduce a new insurance product on the market. Product development activities include:

Activities

Market analysis	Before actual product development, it is necessary to assess the volume of defined crop(s)' production, production area per each year of production for the longest consecutive period of data available. Market analysis also includes the production landscape and farming structure for crops in focus, major producer groups (subsistent, small, commercial farmers). Analysis should also include change factors in production trends within a certain period time to assess business opportunities and possible risks for the future.
Identification of Risk Zones and crop production specifics	Crop production is not homogenous in most countries. Depending on the production area, topographic and climatic conditions the crop's risk exposure may differ significantly. It is a common practice in agricultural insurance to identify risk zones with attributed premium rates reflecting on the actual risk level for the given area calculated by qualified actuaries.
Risk pricing / product rating / PML analysis for re/insurance	Product development includes analysis and estimation of the risk's frequency and severity. Agricultural insurance actuaries apply calculation models to estimate the risk price based on the crop-related datasets available. Probable Maximum Loss (PML) represents the largest loss believed possible for a certain type of crop/risk in a defined return period (e.g.: 50 or 100 years, or more).
Development of underwriting / loss adjustment guidelines	Each product should possess a set of required documentation that includes guidelines and methodologies. Mostly those relate to program administration, underwriting and loss adjustment activities being among the key in the insurance product cycle. Underwriting methodology and guidelines specify the way risk-taking decisions should be made, and factors to consider when taking crop/risk for insurance. Loss adjustment guidelines are aimed at facilitating transparent crop assessment process and calculation methodology for the estimation of the damage extent and the indemnity sum.
Application of Policy wording / terms and conditions (general, crop-specific)	Terms and Conditions of insurance could be general and crop specific. Policy wording is adjusted to the product structure and special conditions applied for insurance coverage of a specific crop/risk.

Challenges


Product Development
Market Analysis
Index Insurance: Toolbox for indices
Index insurance: Risk / Crop modelling (correlation of EO data with in-situ data)
Index insurance: Funtionalities of plants, chemical reations, early stress detection
Index insurance: Parcel / Field and regional yield statistics
Index insurance: Platform for crop health products
Elaboration of crop profile: Field crops, vegetables, horticulture, greenhouses
Information on crop rotation
Information on crop (seasonal) calendar
Elaboration of livestock profile: Cows, sheep, pigs, poultry
Detect livestock: Track animal tags
Livestock: Information on disease location and spreading
Aquaculture: Waves / currents energy
Aquaculture: Algae
Aquaculture: Monitor thermal data
Information on forest health and production at different temporal scales
Monitoring regular cleaning and application of required technology activities for defined wood type
Index insurance: Relation between weather events & impact on crop productivity
Identification of specific stresses and vegetation problems and their underlying causes
Forestry: Infrastructure and management
High accuracy of crop-specific yield for smaller crop parcels
Radar data (eliminated cloud cover effects)
Risk exposure (product design and customer communication)
Crop growth status during the pre-winter vegetation season of winter crops
Benchmark for anomaly indication of abnormal natural occurrence of crop growth
Study relations between climatological events and crop production proxies at large scale
Parametric insurance products