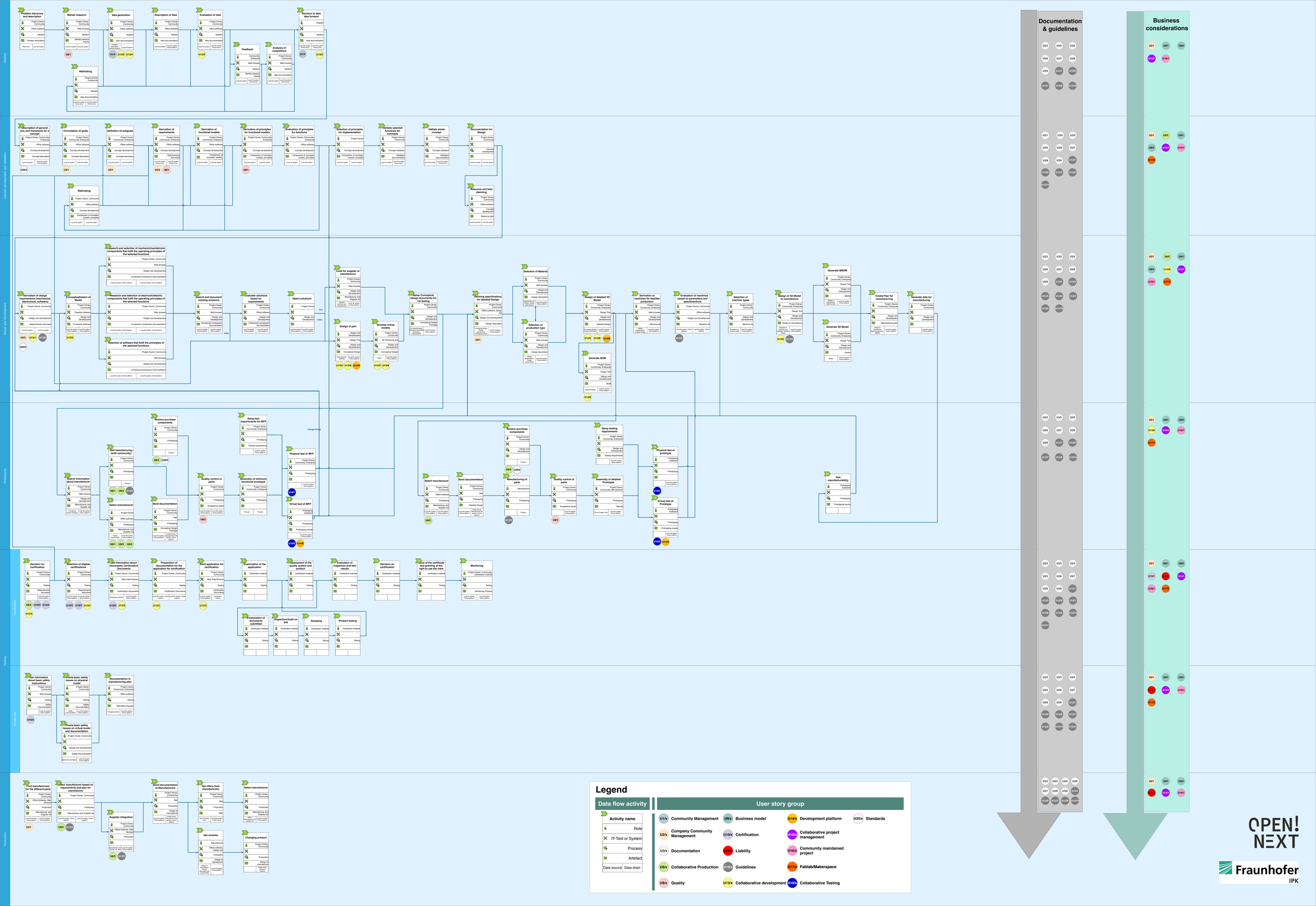
Ideation
Concept development and validation
Design and Development
Prototyping
Testing
Product user
Production
Problem discovery and description
Market research
Idea generation
Description of idea
Evaluation of idea
Decision to take idea forward
Feedback
Analysis of competitors
Rethinking
Description of general aim and framework for a concept
Formulation of goals
Definition of subgoals
Derivation of requirements
Derivation of functional models
Derivation of principles for functional models
Evaluation of principles for functions
Selection of principles for implementation
Validate selected functions for concepts
Validate whole concept
Documentation for Design
Resource and time planning
Derivation of design requirements (mechanical, electronical, software)
Conceptualization of Model
Research and selection of mechanic/mechatronic components that fulfil the operating principles of the selected functions
Research and selection of electronic/electric components that fulfil the operating principles of the selected functions
Selection of software that fulfil the principles of the selected functions
Search and document existing solutions
Evaluate solutions based on requirements
Select solutions
Look for supplier or manufacturer
Design of part
Develop virtual models
Setup Conceptual design documents for 1st testing
Refining specifications for detailed Design
Selection of Material
Selection of production type
Design of detailed 3D Model
Generate BOM
Derivation of machines for feasible production
Evaluation of machines based on parameters and specifications
Selection of machine types
Design of 3D Model to manufacture
Generate MBOM
Generate 3D Model
Create Plan for manufacturing
Generate data for manufacturing
make
buy
change things
Recieve purchase components
Setup test requirements for MFP
Self manufacturing (with community)
Search information about manufacturer
Select manufacturer
Send documentation
Quality control of parts
Assembly of minimum functional prototype
Physical test of MFP
Virtual test of MFP
Setup testing requirements
Physical test of prototype
Virtual test of Prototype
Test manufacturability
Manufacturing of parts
Assembly of detailed Prototype
Decision for certification
Selection of eligible certifications
Get Information about neccessary Certification Documents
Preparation of documentation for the application for certification
Send application for certification
Examination of the application
Assessment of the quality system and product
Evaluation of inspection and test results
Decision on certification
Issue of the certificate and granting of the right to use the mark
Monitoring
Examination of documents submitted
Inspection/Audit on site
Sampling
Product testing
Get information about basic safety instructions
Check basic safety issues on physical model
Check basic safety issues on virtual model and documentation
Documentation in manufacturing plan
Find manufacturers for the different parts
Select manufacturer based on requirements and plan for manufacture
Supplier integration
Send documentation to Manufacturers
Get offers from manufacturers
Get remarks
Select manufacturer
Changing product
Documentation & guidelines
Business considerations
Legend
Data flow activity
Activity name
Role
IT-Tool or System
Process
Artefact
Data source
Data drain
User story group
U1/x Community Management
U2/x Company Community Management
U3/x Documentation
U6/x Collaborative Production
U8/x Quality
U9/x Business model
U10/x Certification
U11/x Liability
U12/x Guidelines
U13/x Collaborative development
U14/x Development platform
U15/x Collaborative project management
U16/x Community maintained project
U17/x Fablab/Makerspace
U19/x Collaborative Testing
U20/x Standards
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