

Number	Group name	Perspective	User story	Aim	Purpose	Additional considerations	Additional Group/s	Frequency
U1/1	Community management	Community collaboration platform manager	Managing community service needs	Provide relevant services	Engage community			3
U1/2		Project owner	Finding and attracting the right collaborators	Growth and effective contribution	Growth & sustenance of community collaboration	- Including companies - Build heterogeneous teams (to encourage development of all aspects of a project) - Skill based categorization		15
U1/3		Project owner	Motivating community to contribute	Healthy & innovative collaborative environment	Growth & sustenance of community collaboration	- Promote out of the box thinking - Avoid feeding influential ideas/concepts to the community - Keep community on board for a longer term - Provide triggers to encourage community to collaborate		15
U1/4		Project owner: Company/organization	Determine business viability of community collaboration through online channels	to successfully collaborate/not collaborate with a community on the long run	Avoid risks	-Select processes which are of interest to the community		5
U1/5		Project owner	Curation of community content	Effective community collaboration	To ensure the users are not overwhelmed with irrelevant data			3
U1/6		Project owner	Community collaboration tool	Use IT tools to collaborate with community	reduce efforts and improve effectivity of working with a community	- Stand alone tool for community collaboration - Connect with internal platform with community collaboration tool - Scheduling		9
U1/7		Project owner	Improve quality of contributions	To receive contributions which are of good quality	To ensure good quality open source hardware development	- Educate community about how to contribute	Quality, Guidelines	8
U1/8		Company	OSH School	Education through & about OSH projects	Spread the thought of open education and sharing.	-Formulating OSH content which is suitable to provide education		1
U1/9		Project owner	Organization of contributions	Clean, clear and categorized contributions	Better traceability of contribution	- Avoid repetitive questions - Skill based categorization - Having administrators (regional) for projects		7
U2/1	Company community management	Company/ Fab lab/ Makerspace	Manage expectation between company and community	Healthy & innovative collaborative environment	Avoid disappointments and misunderstanding of end results	-Collaboration based on humanitarian services (finding the right company, making the first move and managing funds)		1
U2/2		Fab lab/ Makerspace	Requirement collection	Well documented and basis for healthy collaboration	Complete understanding of the requirements of the company			1
U3/1		Product owner &/ Community	Definition of functionalities	Knowledge distribution	So that skilled and non-skilled community can understand and work with it. This supports reuse of			3
U3/2		OSH Platform owner	Motivation for documentation	Continuous documentation	to capture all information throughout the processes	- Incentives - money based or social incentives (researched to have a higher impact)		9
U3/3		Community	Documentation of IT tools used	Complete documentation	Enable reusability	-The level of skill needed to use the tools		3

U3/4	Documentation	Community	Documentation of Safety standards used/followed	Complete documentation	Improve safety			1	
U3/5		Project owner	Document lessons learned	Complete documentation	Prevent similar mistakes from occurring again			4	
U3/6		Company / Community	Tools for documentation	Promote documentation to suit individual behaviour	Accommodate various documentation types and styles			1	
U3/7		Project owner/ Community	Up to date documents	Complete & up to date documentation	Avoid outdated information			1	
U3/8		Community	Read & understand documentation	Find right relevant information	Efficient reading and understanding of relevant documentation	- Separating documentation by developers into process documentation (step by step) and instructions (how to do it) -Consider non technical users			2
U3/9		Platform owner	Feedback to makers/contributors	Continuous documentation & enhancement	Encourage and support documentation			1	
U4/1		Informal knowledge documentation	Project owner	Extraction of knowledge communicated in informal channels	Documenting all types of knowledge	Knowledge discovery	In workshops, makerspaces, fables, phone calls, etc.		1
U4/2			Community	Assign knowledge communicated in informal channels to suitable	Structured and well connected knowledge	Knowledge discovery	In forum, chats, etc.		1
U5/1		Interoperability	Community	Interoperability of IT tools	To build a network of project data across various tools	Knowledge sharing and user friendliness	- Interoperability with GitHub - Interoperability with Google Drive - Interoperability with internal systems		5
U5/2	Community		Traceability of variations of a product	Connecting variations of a product on different platforms	Overview of variations (Customization)	- Families of projects - Traceability of similar projects		4	
U5/3	Community / Project owner		Connecting various project entities	Traceability across entities in a project	Understand the structure and connections among various entities (knowledge connection)	- Library of parts to BOM		4	
U6/1	Collaborative Production	Community	Usage of idle machines in companies	Collaborative production	Increase Resource (Machine) availability & optimization			1	
U6/2		Community/Project owner	Viable prototyping of small quantities	reduce cost of prototyping	small quantities are expensive to produce than large mass production			1	
U6/3		Project owner / Company	Identify right partner for manufacturing/supplying	Find and collaborate with the right partner	Quick matchmaking to encourage manufacturing/production	- Right partner for Open distributed manufacturing/supplying (Marketplace) - Profile, experience, certifications of manufacturer/supplier - To generate an ecosystem - As a service from fab lab network - Find suitable workshop/Makerspace - A map with competencies to identify gaps and possibilities		9	
U6/4		Company/ Fab lab/ Makerspace	Cost sharing for certifications & regulations	To reduce cost and pressure of certifications on those who manufacture it	Shared & cost effective process of certification		Certification	1	
U6/5		Community / Company	Early cost estimation	Identify possible manufacturing steps and estimate/ calculate costs	Estimate cost of production	- Avoid repetitive questions		2	

U7/1	Status	Community	Identify status of project	Aid search ability & be aware of the contents of the project	Enable conscious reusability and reduce risk of failure	- Remade status updates - Impact indication - Availability/level of documentation - Enable to follow a project, get notifications - Rate the quality of a project		9
U8/1	Quality	Company	Differentiate level of professionalism	Able to judge/differentiate online project with respect to the professional competitive products on the market	Helping in differentiate the level of maturity in the projects and look deeper into the right information			2
U8/2		Project owner / Company	Ensure manufacturing quality	Manufacture a product of quality	Products are manufactured that are in conformance with the quality requirements			2
U9/1	Business model	Project owner	Information about different business models	Select the right business model for self and the community	Business viability	- Fab lab and community		7
U9/2		Project owner / Company	Spreading model	Spread OSH impact	Models to spread impact efficiently			1
U10/1	Certification	Company / community	Funding for certification	Improve safety of products in market	Encourage certification			1
U10/2		Project owner	Find the right safety standard	Generate safe projects	Promote safety			1
U10/3		Company / community	Find certification information	Find and collaborate on certification	Tackle the difficulties in certification processes			1
U11/1	Liability	Project owner	Manage liability	Manage liability across the world	Manage and understand regulation around the world to avoid liability issues			3
U12/1	Guidelines	Project owner	Guide for product development	Encourage systematic product development	Guide to improve quality, reduce risks and failures	- Quality guidelines to be included - Manufacturing guidelines to be included (e.g. Tolerance) - Requirements document		15
U12/2		Project owner	Share instructions for manufacturing	To manufacture the right product the right way	Ensure that quality, time and process expectations are held up	- Educate manufacturers - Develop standard for sharing manufacturing information from project owner to community/manufacture		4
U12/3		Project owner	Guide the users to customize design	To enable open customization of designs by various users	Generate innovative ideas and enable customization of existing designs			1
U12/4		Project owner	Guide for aesthetics	Include aesthetics aspects	Educate about aesthetics			1
U12/5		Project owner	Guide for testing	Enable community to test in product development	Promote testing and safety	- Skill development for testing - Equipment needed - Standards to be followed - When to test		6
U12/6		Community	Guide for contributing	Know how to contribute	Maintain quality and standards of initial project/company			1
U12/7		Community / company	Guide for service and maintenance	Know how to service and maintain	Enable uncomplicated and inexpensive service and maintenance		Fab lab	1
U12/8		Project owner/ company	Guide for certification	Promote certification of reproduced products	Quality and safety of end product	- Component based - Country based	Certification	4
U12/9		Community / Project owner	Guide for using OSH sharing platform	Promote sharing from everyone	Enable uncomplicated sharing experience for community with various			3
U12/10		Community / Project owner / Company	Guide for using OSH tools	Improve usability of OSH tools	Promote usage of OSH tools			1

U12/11		Company / community	Legal framework Guide for company community collaboration	Friction free collaboration	Protect everyone			1
U13/1	Collaborative product development	Community	Low complexity of product	Make product reproducible using lesser efforts/process steps	Broaden reproduction/manufacturing	- Reducing supply chain of parts to be manufactured		3
U13/2		Project owner	Encourage boarder solution thinking	Concepts which solve needs of a boarder group of end users/use cases	Generation of solutions suitable for broader end users/use cases	- Consider impact on production (perhaps alternative solutions for different countries)		2
U13/3		Project owner / community	Certify reproductions of OSH/OSD	Ensure standard have been followed when reproduced	Promote certified products		Certification	2
U13/4		Project owner	Collaborative idea/concept development	Community based collaborative development of ideas	Innovative idea generation	- When there is interest in the idea the contributor has interest in further documenting and collaborating	Documentation, Community management	1
U13/5		Project owner	Collaborative design	Community based collaborative design of products	Promote and guide collaborative design	- Electronic design		3
U13/6		Project owner	Agile collaborative development	Collaborate and develop with the community in an agile way	Agile management in community collaboration		Community management	1
U13/7		Project owner	Collaborate with community over all phases (From concept to prototyping)	Collaborative development	Receive feedback and ideas from community to improve and innovate during various phases of the project	- Concept development - Concept validation - Design - Prototyping		7
U13/8		Project owner / community / company	Find right OSH tool	Identifying the right tool for a given task	Using OSH tools for OSD			1
U14/1	Development platform	Project owner	Visualize 3D models	Overview of product/project	Improve perception of product/project	- Support different formats		2
U14/2		Project owner	Version management	Systematic management of collaborative product development	Organize and control revisions	- Reason of change - What was changed - What can still/must be changed - Connecting changes		4
U14/3		Project owner	Supported OSH file formats	Accessibility of files in OSH community	Improve outreach of files			1
U14/4		Project owner / Community	Contributor profile	Knowledge about the profile of the collaborator enables more opportunities for collaboration	Enhanced collaboration experience	- Project owner profile	Community management	2
U14/5		Project owner / Contributor	Fair acknowledgement of contributor	Promote fairness in OSH collaboration	Prevent insecurities in collaborators, and protect IP of contributors		Community management	4
U14/6		Project owner/ Company	Support rebuilds	Supportive and qualitative collaboration	Encourage and guide community			1
U14/7		Project owner	Identify (the community that) interactions of project	Continuous improvement of project through feedback	Communicate and integrate community	- Know who downloaded a project - Know how the project is used/built	Collaborative product development	6
U14/8		Project owner	Improve OSH CAD tools	Complex designs and products	Additional features			4
U14/9		Project owner	Improve or develop OS virtual prototyping tools	Virtual verification & validation, Complex designs and products	Additional features, early verification & validation	- with fab labs		1
U14/10		Project owner	Visualize feedback from community	Alternative form of feedback mechanism	Encourage innovation	- Tool to translate and visualize - Validation tool for solutions		3
U15/1	Collaborative project management	Project owner/ Company	Project management	Collaboratively work and manage projects	Successful management of development and collaboration activities			2

U16/1	Community maintained project	Project owner	Develop a community based ecosystem which maintains a project	Community based project development and continuous improvement	Continuous development even if the original designer is not active anymore			3
U17/1	Fab lab/ Makerspace	Company / community	Prototyping	Collaborative prototyping	Aid in sharing resources and knowledge for collaborative prototyping			2
U17/2		Company / community	Testing	Collaborative testing	Aid in sharing resources and knowledge for collaborative testing	- Electronics - Automotive		3
U17/3		Company / community	Service & Maintenance	To provide assistance to keep the OSH products alive	Aid self service and maintenance based business models of OSH products			1
U17/4		Fab labs / Makerspace	Membership management	Management and engagement of members	Manage members efficiently			1
U17/5		Company / community	Services provided by fab labs	Transparent services picture of fab labs	More machines and faster access to resources (Components ecosystem)	- Declare competencies - Declare infrastructure - Cost clarification		3
U18/1	Discoverability	Community / Project owner	Finding relevant information/ projects	Categorized insights	Quick and efficient discoverability of information	- Project templates to showcase and promote projects - Discoverability based on technologies used - Comparing existing projects		4
U19/1	Collaborative Testing	Community	Testing of prototype developed from OSH project	To develop a prototype that can be safely used	Ensure safety and quality	- Involvement of fab labs - Consideration specific sectors (electronic, automobile, medical, etc.)	Fab lab/ Makerspace	2
U19/2		Community	Remote hardware testing and prototyping	Prototype & Test hardware from anywhere	Complex products which cannot be built by everyone has a chance to be worked on and improved by the community	- Involve fab labs	Fab lab/ Makerspace	2
U20/1	Standards	Community	Metric system compatibility	work and support with various metric systems	Ensure metric parameters are interpreted in the same sense across various countries	- Materials	Development platform	1
U20/2		Project owner	Find and use standardized components	Reuse standard components	Improve speed, cost reduction and work with commonly available components			1