Appendix A: Gold Standard of the 22 Templated User Requirements

Category	Templated User Requirement
Utility	{Purpose} In order to increase the completeness with which specific goals are achieved {Product Quality} by a better functional appropriateness, {Perspective} as a participant in a delivery (e.g., recipient, supplier), {Need} I want to be able to communicate with the other participant, {Intention} to be able to coordinate the delivery. For example, I have experienced {Product Quality} a better functional appropriateness when I interacted {Related Software Product} with a logistics company's website {Functionality} that provided the possibility to communicate with the other participant, {Implementation} implemented by a messenger.
Utility	{Purpose} In order to increase the appropriateness of data input {Product Quality} by a better functional appropriateness, {Perspective} as a buyer, {Need} I want to be able to order all articles in my shopping cart, {Intention} to receive them. For example, I have experienced {Product Quality} a better functional appropriateness, when I interacted {Related Software Product} with an online shop {Functionality} that provided the possibility to order all articles in my shopping cart, {Implementation} implemented by the possibility to gather articles in my shopping cart and to receive all of them at once by one click.
Ease of Use	{Purpose} In order to increase the informativeness of the delivery platform {Product Quality} by a better functional appropriateness, {Perspective} as a supplier, {Need} I want to be able to be informed that additional packages are ready for delivery at the pick-up location, {Intention} to decide whether I want to take other packages with me. For example, I experienced {Product Quality} a better functional appropriateness when I interacted {Related Software Product} with a logistics company's website {Functionality} that provided the possibility to know that additional packages are ready for delivery at the pick-up location, {Implementation} implemented by the immediate provision of the visual and auditory information that additional packages are ready for delivery at the pick-up location.
Ease of Use	{Purpose} In order to decrease the expenditure of human resources when I order goods {Product Quality} by a better adaptation to individual preferences, {Perspective} as a recipient, {Need} I want to be able to set which notifications I would like to receive, {Intention} to be disturbed only in matters that are important to me. For example, I have experienced {Product Quality} a better adaptation to individual preferences when I interacted {Related Software Product} with a social media platform {Functionality} that provided the possibility to set which notifications I would like to receive, {Implementation} implemented by the possibility to set individually for each type of notification, which notifications I would like to receive.

Enablement of Personal Development	{Purpose} In order to increase the enablement of my personal development {Product Quality} by a better accountability, {Perspective} as a citizen, {Need}I want to be able to be informed about my partners in the project {Intention} to learn who the organizations involved are and what they do in the context of the project. For example, I have experienced {Product Quality} a better accountability when I interacted {Related Software Product} with an online learning platform {Functionality} that provided the possibility to be informed about the project partners, {Implementation} implemented by a detailed partner description page with corresponding legal information and all information about the partners providing the content, together with links to websites and other information regarding the partners.
Enablement of Personal Development	{Purpose} In order to increase the enablement of my personal development {Product Quality} by a better availability of usage explanations, {Perspective} as an interested citizen, {Need} I want to be able to be informed about the project "Digital Villages", {Intention} to tell family, friends, acquaintances, etc. what is happening in the project. For example, I have experienced {Product Quality} a better availability of usage explanations when I interacted {Related Software Product} with a game {Functionality} that provided the possibility to be informed about the game's rules and some crucial hints, {Implementation} implemented by the provision of a tutorial that pops up on first use.
Identification	{Purpose} In order to increase my personal image {Product Quality} by a better functional appropriateness, {Perspective} as an administrator / author, {Need} I want to be able to support citizens by releasing news, {Intention} to make it accessible to the citizens. For example, I have experienced {Product Quality} a better functional appropriateness when I interacted {Related Software Product} with a social network {Functionality} that provided the possibility to support other persons by releasing news and guidance, {Implementation} implemented by the possibility to immediately release latest news to each one on a list of my followers at once.
Identification	{Purpose} In order to increase my status after delivery of a package to the recipient {Product Quality} by a better appropriateness recognizability, {Perspective} as a supplier, {Need} I want to be able to receive the credits according to the value of the package from the account of the recipient {Intention} to receive the reward I am entitled to. For example, I have experienced {Product Quality} a better appropriateness recognizability when I interacted {Related Software Product} with a professional network {Functionality} that provided the possibility to receive the credits according to the value of the quality of my references, {Implementation} implemented by the provision of a function to upload my references in order to calculate the adequate credits.

Trust	{Purpose} In order to ensure the honesty of the application {Product Quality} by a better availability of items, {Perspective} as a user, {Need} I want to be able to read and possibly agree to its terms and conditions that apply to its use, {Intention} to trust and continue using the application. For example, I have experienced {Product Quality} a better availability of items when I interacted {Related Software Product} with an application {Functionality} that provided the possibility to read and possibly agree to its terms and conditions that apply to its use, {Implementation} implemented by a modal dialog that forced me to carefully read and agree to the terms of use only if I was satisfied with them before I could proceed using it.
Trust	{Purpose} In order to increase the consistency of my shop system {Product Quality} by a better availability of items, {Perspective} as a seller, {Need} I want to be able to be informed that a buyer ordered goods from me, {Intention} to process the order. For example, I have experienced {Product Quality} a better availability of items {Related Software Product} with a telecommunication system {Functionality} that provided the possibility to be informed that a caller tried to talk to me, {Implementation} implemented by a provision of the caller's number, the date of the call, and the possibility for the caller to leave a message.
Attachment	{Purpose} In order to increase my attachment to the application {Product Quality} by a better usability without help, {Perspective} as a user, {Need} I want to be able to chat with other users {Intention} to communicate with them. For example, I have experienced {Product Quality} a better usability without help when I interacted {Related Software Product} with a mobile messenger {Functionality} that provided the possibility to chat with other users, {Implementation} implemented by the possibility to easily send text, photos, videos and voice messages to my friends.
Attachment	{Purpose} In order to increase my attachment to my home community {Product Quality} by a better feeling of being encouraged, {Perspective} as a user, {Need} I want to be able to select which municipality I belong to {Intention} to use the respective functions of my home community. For example, I have experienced {Product Quality} a better feeling of being encouraged when I interacted {Related Software Product} with an online shop {Functionality} that provided the possibility to select which interest group I belong to, {Implementation} implemented by the presentation of the favorite goods of other persons from the same interest group, to encourage me to buy the same goods.

Symbolism	{Purpose} In order to increase the provocation of memories {Product Quality} by a better feeling of being encouraged, {Perspective} as a seller, {Need} I want to be able to confirm or reject an order. {Intention} to inform the buyer of my willingness to dispatch goods. For example, I have experienced {Product Quality} a better feeling of being encouraged when I interacted {Related Software Product} with a do-it-yourself store's online shop {Functionality} that provided the possibility to confirm or reject an order, {Implementation} implemented by icons that look like toy cars, which reminded me of my childhood where I loved playing with such cars.
Symbolism	{Purpose} In order to increase the provocation of memories when I give a textual feedback {Product Quality} by a better item understandability, {Perspective} as a user, {Need} I want to be able to give a textual feedback, {Intention} to report problems or the like. For example, I have experienced {Product Quality} a better item understandability when I interacted {Related Software Product} with a chat tool {Functionality} that provided the possibility to give a textual feedback, {Implementation} implemented by presenting the textual feedback in speech bubbles that reminded me of comic strips that I liked very much in my youth.
Aesthetics	{Purpose} In order to increase the beauty of the form for submitting an idea {Product Quality} by a better feeling of being encouraged, {Perspective} as an interested citizen, {Need} I want to be able to submit an idea, {Intention} to express my wish or suggestion. For example, I have experienced {Product Quality} a better feeling of being encouraged when I interacted {Related Software Product} with a social network {Functionality} that provided the possibility to submit an idea, {Implementation} implemented by the provision of interactive 3D objects that could be combined to convey ideas through the meanings associated with each object.
Aesthetics	{Purpose} In order to increase the innovativeness of the design of recipes {Product Quality} by a better interaction style, {Perspective} as a citizen, {Need} I want to be able to comment on a shared recipe, {Intention} to express my opinion about the recipe or to respond to comments from other citizens. For example, I have experienced {Product Quality} a better interaction style when I interacted {Related Software Product} with a recipe website {Functionality} that provided the possibility to comment on a shared recipe, {Implementation} implemented by a video that presented the step-by-step way of preparing and cooking each ingredient, and icons to pause and resume the video to allow me to write textual comments to any step.

Luxuriousness	{Purpose} In order to increase the luxuriousness of the app {Product Quality} by a better availability of shortcuts, {Perspective} as a user, {Need} I want to be able to evaluate the shared idea of another citizen, {Intention} to express my like or dislike for the idea. For example, I have experienced {Product Quality} a better availability of shortcuts when I interacted {Related Software Product} with my smart home system {Functionality} that provided the possibility to switch on the TV, dim the light, and start a particular movie, {Implementation} implemented by a single voice command I could give when I was connected to my smart home system via my smart phone.
Luxuriousness	{Purpose} In order to increase the luxuriousness of the app {Product Quality} by a better feeling of being encouraged, {Perspective} as a citizen, {Need} I want to be able to comment on a shared idea, {Intention} to express my opinion about the idea or to respond to comments from other citizens. For example, I have experienced {Product Quality} a better feeling of being encouraged when I interacted {Related Software Product} with a webshop of a consumer electronics reseller {Functionality} that provided the possibility to comment on a particular product, {Implementation} implemented by representing each product in shiny colors and in particularly prepared rooms with premium furnishings, where I could click on each product to see the comments from other customers and to comment on these comments.
Physical Comfort	{Purpose} In order to adapt the environment for my physical comfort with respect to pick-up parcels {Product Quality} by a better adaptation to individual preferences, {Perspective} as a citizen, {Need} I want to be able to indicate whether I would like to be informed about pick-up parcels, and if so, at which times and up to what distance from my current location the packages may be located, {Intention} to avoid being disturbed by notifications that are irrelevant to me. For example, I have experienced {Product Quality} a better adaptation to individual preferences when I interacted {Related Software Product} with a logistics company's website {Functionality} that provided the possibility to indicate whether I would like to be informed about parcels addressed to me, {Implementation} implemented by the possibility to indicate the maximum distance of the parcel from my current location in which I want to live track the parcel on a digital map and whether I would like to be informed about parcels via a simple check box.
Physical Comfort	{Purpose} In order to adapt the position for my physical comfort when buying goods {Product Quality} by a better functional appropriateness, {Perspective} as a buyer, {Need} I want to be able to see the products in a shop by video and can be advised by a salesman on site, {Intention} to make purchases from my home with advice from a salesman. For example, I have experienced {Product Quality} a better functional appropriateness when I interacted {Related Software Product} with an interactive online shop {Functionality} that provided the possibility to see the products in a shop by video and can be advised by a salesman on site, {Implementation} implemented by the possibility to select a particular product to get a detail view and each information I want to get, either textual or provided by the salesman.

Freedom from Risk	{Purpose} In order to decrease the potential risk to property after I ordered goods {Product Quality} by a better integrity of the application, {Perspective} as a recipient, {Need} I want to be able to be informed of changes in the status of the package I ordered. {Intention} to schedule the receipt of the package or to readdress the package. For example, I have experienced {Product Quality} a better integrity when I interacted {Related Software Product} with a mobile phone {Functionality} that provided the possibility to be informed of changes in the status of the mobile phone,. {Implementation} implemented by a status display that continuously informed of changes in the status of the mobile phone via distinctive colors and blinking frequencies.
Freedom from Risk	{Purpose} In order to decrease the potential risk to property when I order goods {Product Quality} by a better accountability of the ordering platform, {Perspective} as a recipient, {Need} I want to be able to track where my package is currently located {Intention} to find the package in case it gets lost. For example, I have experienced {Product Quality} a better accountability when I interacted {Related Software Product} with an online shop {Functionality} that provided the possibility to track where my package is currently located, {Implementation} implemented by the possibility to live-track where my package is currently located with an estimation of the remaining time of delivery.

Appendix B: Instructions for the Classification

A user requirement of a product is related to **pragmatic** quality if any of the following three cases applies:

1. The requirement addresses the product's relevant functionality to effectively achieving a particular task, i.e., the product's utility, as it is perceived by the user.
2. The requirement addresses the product's ways to efficiently access its functionality to effectively achieve a particular task, i.e., the product's ease of use, as it is perceived by the user.
3. The requirement addresses the product's overall usefulness, e.g., by aiming at product assessments such as structured, practical, predictable, or simple.

A user requirement is related to **hedonic** quality if any of the following two cases applies:

1. The requirement emphasizes the user's psychological well-being through addressing one of the following nine criteria:
   a. Enablement of personal development,
   b. Identification,
   c. Symbolism,
   d. Attachment,
   e. Aesthetics,
   f. Luxuriousness,
   g. Trust,
   h. Physical comfort,
   i. Freedom from risk.

2. The requirement addresses the product's overall appeal, e.g., by aiming at hedonic product assessments such as captivating, stylish, beautiful, novel, premium, creative, original, innovative, presentable,

integrating, exciting, amusing, thrilling, fun, enjoyable, interesting, pleasant, impressive, motivating, inventive, playful, competitive, or exploratory.

This overall appeal is manifested through emotional expressions such as experiencing fun, enjoyment, happiness, and pleasure.

In classifying a user requirement, always stick to only the explicit information provided by the requirement and do not try to over-interpret it by assigning implicit meaning to it.

If the requirement seems to be both pragmatic and hedonic, classify the requirement as "hedonic", because in any case, each hedonic quality is built on a pragmatic quality.

If the requirement relates to inherent system properties, such as internal system functions, static properties of software and dynamic properties of a computer system, i.e., if the requirement does not include any keyword that indicates hedonic quality or pragmatic quality, classify the requirement as "neither".

If the requirement has failed to be classified so far, because it is lacking information that is necessary to clearly classify it as pragmatic or as hedonic, classify the requirement as "ambiguous".