

WECRAFT: a Platform for Networking Rural Craftsmen in Co-Production of Artisanal Crafts

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Abstract— India is a growing country with over 1.2 billion people, out of which more than two-thirds still live in rural areas. Indian rural areas are vibrant heritage-wise. They have both a fascinating hard and soft heritage legacy. Each region has many kinds of villages, and each is characterized by specific arts and crafts skills developed over the centuries. Small settlements retain fascinating heritage, which should be acknowledged and protected. Nowadays, rural villages are slowly perishing and losing their skilled people under the pressure of migration to cities. Rural settlements are suffering the exodus of young people and losing their art and craft skilled artisans. Since these settlements have been neglected, how do we bring attention to these fascinating areas? How do we allow skilled artisans to make a living and want to remain in rural areas? How do we provide a more sustainable future for both our rural and urban settlements? WECRAFT is an initiative that addresses these concerns by combining the best of affordable technologies and humanities, planning to enhance village areas, their skilled artisans and their products.

Keywords—craft networking, C2C business model, cooperative craftsmanship chains, rural India, sustainable design, co-production

I. INTRODUCTION

India is increasingly becoming central to the international debate as a diverse country with various kinds of settlements, from the largest megacities to the smallest villages. The subcontinent counts 890 million people, where 69% of the total population is living in rural areas. There are so many villages that India has often been described as ‘the Country of villages’. It is a land notable for its age-old and stratified art and craft tradition. This is especially true for *small rural villages*, which are very rich in all kinds of products that skilled artisans have locally produced. Sadly, the forces of globalization are changing India’s face and the increasing pressure of urbanization, depriving village’s skilled artisans, is making gradually disappear all these valuable local traditions.

This work proposes a digital platform that we call WECRAFT for artisans of rural villages, which tries to respond to the needs collected during study trips and workshops organized with local artisans during the years 2015-2019 by Dr. Pilar Maria Guerrieri in collaboration with the Indian Trust for Rural Heritage and Development [1]. We envision a web platform endowed with a cloud-positioned back-end and an app to be used on smartphones, to support networks of cooperating artisans in producing and selling their products, as well as to get in touch with customers and resellers, and with generic users in an “intuitive” way. This contribution is within the guidelines proposed for instance by the Cultural and Creative Enterprises (CCEs) called *Platform Spaces* [2] based on

multi-stakeholder cooperation mechanisms, arts and culture, and the engagement of local communities to ensure accessibility of their activities and to meet territorial development goals. Analogously, we discuss a conceptual framework for a platform that address territorial development approaches for Indian artisans networks. An approach in the same context is described in [3]. It tries to go beyond pure e-commerce platforms, which provide very low-cost worldwide visibility, but do not include any strategies allowing any artisans to give opinions about willingness to accept/reject orders (e.g., in accordance to personal inconvenience, wages, shipping deadlines, etc.). Analogous to our proposal, [3] wants to gain active participation of rural producers in the process of production, by considering the opinion and collaboration between rural-urban agents. However, the focus is mainly on supporting the possibility of allocating an order to the rural artisans and on creating a Community-driven Information System for Rural Artisans (CISRA), which identifies the selection of artisans in a fairness manner, as a strategy to boost market opportunities of rural producers.

Our aim is more comprehensive, in that it wants to encourage networking of artisans, creating *communities of artisans* who can use a *virtual space* to share knowledge and products information online, eliminating the need for middlemen and intermediaries in the production/selling chain.

Artisans will want to be on WECRAFT because it will give them an opportunity to open an online shop and to sell directly their artefacts to the customers without the presence of the middlemen, getting direct payments. The platform will give the artisans the entire profit from their hard handmade work.

Moreover, WECRAFT goes far beyond being a community for artefacts. It is meant to create an active and fair national community of artisans, and provides craftsmen with the opportunity of cooperating with schools of design, thus putting them in contact with new ideas and giving them great visibility and exposure. It also offers potential cooperation with designers from all over the world, which from rural India they would have never accessed. It includes easy-to-use tools, such as interactive maps, in the streamline of [4] for rural areas, with timely and accurate information on rural settlements using remote sensing and popular navigation engines like Google Earth Engine (GEE) platform. Through maps, and other tools like video communications, chats, multimedia support and other different features, WECRAFT wants to play diverse vital roles in the development of rural community settlements in various Indian regions.

From the technological viewpoint, WECRAFT uses the cloud for the back-end system, integrating IoT technologies according to the approach in [5], and the edge-computing paradigm [6] for those network resources that provide services of user interface, map navigation, community interaction etc. at an energy-efficient pace. Edge computing is convenient in various ways for our target users since it integrates computing, storage, and network resources at the edge of the network both providing an infrastructure and enabling developers to quickly develop and deploy applications.

Finally, as debated in [7], the Internet of Things (IoT) is driving the digital revolution in almost all economic sectors making them “Smart”. However, there is still a big gap between IoT and its users in some context, such as ours, which derives from the lack of computational power and computational resources. This is particularly true in rural IoT environments where the lack of connectivity (or low-bandwidth connections) and power supply forces the search for “efficient” alternatives to provide computational resources to IoT infrastructures without increasing power consumption. In this paper, we consider edge computing as a solution for bridging such a gap in the rural environment. We will not evaluate the training stages or the detail of our selected architecture (presented in Section V). Our proposal reveals that cloud and edge approaches are still a long way off in terms of performance and usability, but the use of edge devices offers new opportunities for those scenarios where connectivity is still a challenge.

This paper is organized as follows. Section II reports the state of the art in rural India; Section III describes the vision of our proposed platform. The next sections provide more details about the involved actors and the main functionalities (Section IV) and its architecture (Section V). Section VI considers issues of privacy, security and ethics. Finally, Section VII draws the conclusions.

II. INDIA’S RURAL BACKGROUND

We illustrate some of the main issues of interest in what follows, to derive a proposed networked platform for digital connection of marketers in a C2C style.

a) Hard vs Soft Heritage

Migration from the countryside to the cities is a worldwide phenomenon, but the potential of villages has been increasingly recognized, and international institutions have been endeavouring to fight for their preservation. In this context, India presents one of the most interesting case studies given its incredible diversity of villages, each with a unique tradition worth rediscovering and developing. Villages have both a hard and soft heritage, ‘hard’ denoting buildings and urban structures, and ‘soft’ relating to the crafts. Most of the ‘soft’ traditions are directly or indirectly linked to design: for instance, some villages specialize in textiles, others in rugs, shoes, pottery, furniture, traditional music, jewellery, and the like [8; 9; 10; 11; 12; 13; 14]. Soft and hard heritage are tightly linked because if the first flourish the other indirectly benefits from it. Protecting, and keeping the diversity of Indian skilled tradition alive, in its original locations, is the mission of the WECRAFT platform.

b) State of the Art

Currently, there are no digital platforms that try to combine the possibility of directly selling crafted products and giving the opportunity of interaction between craftsmen, urban designers and design students/schools.

In India, there are already platforms that engage with art and craft realm, one of the most relevant is Dastkar (<https://www.dastkar.org>), among others ODOP (One District, One product - <http://odopup.in/>) or AIACA (All India Artisans and Craftworkers Association). All very interesting ventures that, unfortunately, are not really giving the crafts the direct power of being agents of the selling process and directly engaging via an intuitive mobile app. Moreover, none gives direct access to e-learning activities or interaction with International designers.

A farmers' cooperative called Araku has launched its brand of organic coffee sold without intermediaries, from producer to consumer. In doing so, the cooperative managed to leave India, its country, and enter the world market (<https://www.arakucoffee.com/en>). In 2000, the owner of the Naandi Foundation relaunched the cultivation of coffee in the Araku valley, in Andra Pradesh (eastern India), where 25 thousand farmers live in 500 villages where the earth is rich in iron and favourable for its plateau climate, but the ecosystem is fragile. Thus, to allow farmers to sell their Arabian coffee at a decent price, Kumar trains them in biodynamic cultivation.

Examples of platforms around the world that try to connect and enhance craftsmen work exist; a successful example is ISHKAR (<https://www.ishkar.com/>) in Afghanistan. It succeeded in bringing together various numbers of individual small-scale craftsmen and the urban/international market, activating a collaboration between NGOs, designers, artisans and travel guides. In Mexico, Canuto (<https://www.canuto.com.mx/>) has also achieved to create a very successful line of crafted products for pets, through the collaboration between young designers and local craft people from Mexican villages.

There is increasing interest in the topic, given the rise of ventures such as Handmade Amazon or i-craft platform, that allow selling directly products crafted by hand, which makes us confident of the potential of WECRAFT initiative.

c) Networking

Villages are many, but unfortunately, they are often left isolated, and in their isolation, they lose strength [15;16]. Other institutions are working on Indian crafts in a very scattered manner, on just one type of village specialized in just one skill, see for example the work done by “Jaipur Rugs” (<https://www.jaipurrugs.com/>) on just skilled rug villages. The truth is that the Indian crafts to be preserved are many more, and so are the skills. The Indian Trust for Rural Heritage and Development (ITRHD) has been working on building a network at a national level to protect the Indian rural heritage in its entirety, which is not an easy task, and would be a great partner to tie up relationships with the villagers [17].

Following this idea, WECRAFT is being designed to strongly support the creation of a network of Indian villages, including all the variety of its crafts.

d) Middle-men vs e-commerce

Villagers are losing their young population, which is moving into cities to find a better job opportunity. Unfortunately, they end up being “uber drivers”, workers in building sites, guards, jobs that are not more exciting and rewarding than highly skilled artisanal work they could do back in the villages. The artisanal work is not sufficiently valued by the youngsters as a real possibility for their future career. It is not just because of the city’s myth and charm, but also because of the presence of the middleman, who gains all the profit from selling the villager’s products. Moreover, the pressure to produce “more for less” have forced the artisans to convert the handlooms into powered looms, losing the high quality of the production in the process. WECRAFT, by providing an e-commerce platform, can ensure artisans get most of the proceeds from sales.

e) Diffusion of Mobile devices

Even if it sounds incredible, most villagers, also those living in the more remote settlements, have phones and internet connection. That is also partly why young people develop the dream of moving into urban areas in the first place. WECRAFT will be an inclusive platform that can engage with the villagers just by using a mobile app to upload, interact, and share all the products and artisanal processes. The platform is imagined by web designers, customized for artisans and used by ordinary users. It implies a very strong community involvement through crowdsourcing tools and to develop an incredibly simple/intuitive app, which could be used even by no-tech trained people.

f) Designers/Artisans Interaction

One problem with contemporary Indian art and craft is that most skilled artisans propose old fashion designs. WECRAFT is planning not just to be an e-commerce platform but an active creative and innovative design tool. In fact, through the platform, professional designers will be encouraged to participate and interact directly with the artisans, customizing their designs. This opportunity will actively promote a fusion between past, present and future, a design form of cooperation, which starts ‘bottom-up’ rather ‘top-down’. This project has incredible value for its capability of connecting traditional heritage with contemporary cultural legacy. Young craftsmen in touch with students and designers can enrich their knowledge, keep their passion and revitalize villages.

III. WECRAFT PLATFORM’S VISION AND BUSINESS MODEL

The WECRAFT platform is being designed as a portal to allow artisans to directly sell artefacts (with no middlemen), endowed with various features that we list in the following points summarizing our vision, first, and defining the basic elements of the business model for our context.



Fig.1 Photo of a Weaver inside his home in Mubarakpur village in India, © PilarMariaGuerrieri



Fig. 2 Photo of a woman in front of her house in Nizamabad village in India, waiting to sell her products, © PilarMariaGuerrieri

A. Vision

The elements to be taken into account when defining a strategy and the consequent support tools are listed in what follows.

Support to Living Tradition

WECRAFT will create value through the community and give value back to the community itself. The revenues earned through the sale of products online can provide direct benefit to the survival of soft heritage and also, indirectly, to the maintenance of rural hard heritage. The platform will make the villages and their culture more visible by putting the villages and their arts and crafts on a map, and by allowing users to explore them. The platform may move tourism to the rural areas and create better conditions in rural settlements, which often hide unique heritage treasures, thus reviving a great part of Indian tradition and sites. WECRAFT can transform traditional heritage into a “living tradition”, which is actually the only way to keep any tradition alive.

Self-sustainability

Protecting the villages is not just about preserving a rich, ancient and valuable heritage, but it represents the starting point of a virtuous circle to make the villages self-sustainable. Indeed, well-maintained villages with rich local art and craft traditions usher in tourism - in loco and online - tourism and clients produce money, money provides an opportunity to improve the village facilities and job opportunities, giving an incentive to the young people to remain. Given the international clients, and the absence of the middleman, the revenues from the platform will be enough to make it worth for the youngster to stay in the villages and, at the same time, have enough to maintain the platform alive. The platform will be able to support itself entirely from an economic point of view.

Sustainable Smart

WECRAFT, by creating a valuable interaction between digital and humanities, envisions a “smart rural concept”. It implements a valuable way to give back to the community, preserves cultural heritage, uses advanced technology, creates a sustainable perspective to the term “smart”. The use of a digital platform that enhances cultural heritage shows the great potential of the active interaction between *modern technology and tradition*. Indian rural communities greatly need innovation, but an innovation that does not erase their valuable legacies, on the contrary, it can enhance them fully.

E-learning

The WECRAFT platform is designed to allow the artisans to directly interact with the younger generation of designers who are still in school. Universities, scholars, and students can work together with the local inhabitants of the various minor settlements to develop new sustainable designs based on traditional ones, commercialized and sold on a greater scale. The interaction with younger designers will allow the artisans to update designs, let the young “learn by doing”, transforming WECRAFT into an *e-learning platform*. The encounter between universities, craftspeople, and industry provides an opportunity for a new beginning, which goes far beyond both pure artisanal work and standardization of design, and opens up vast opportunities of breathing new life into ancient. Design students will benefit from greater exposure and appreciation of India’s diversity, history and challenges and local projects will benefit from the energy, organizational skills and tech-savviness of design students. WECRAFT is a platform where artisans/skilled art and craft and young/new designers can learn from each other, generating sustainable cultural progress.

Support to Co-Production

Recent developments in ICT have increased the interest of different Countries in the area of *service provisioning from public organizations and among citizens*, because this aspect has since long been considered an important strategy of transformation of the relationship among citizens and companies on a given territory.

On the other side, co-production is growing as a paradigm with various definitions, each capturing a dimension of its meaning. Co-production primarily concerns the involvement of the citizens or the users in the provisioning of services, which includes the direct involvement of users in the private and public sectors [18].

Co-production of services can be described as any active behaviour by anyone (outside of the government agencies) that creates private/public value voluntary - at least partly - in collaboration with, or independently of, the government agency [19]. Co-production can also refer to the involvement of users in knowledge generation in knowledge-intensive services.

In this paper, we consider co-production in WECRAFT as the paradigm representing the involvement and collaboration of the artisans in using, feeding, and improving the services in districts and villages. It turns out that artisans, organizations, and individuals or communities can be highly involved not only in service use but also in service provision and decision-making regarding production and distribution.

B. Basic Elements of the Business Model

The basic elements of the WECRAFT Business Model (BM) are now illustrated. We consider the services and processes defined for BM in general ([20], [21]) for what concerns the connection between BMs to technological and market innovation. In particular, we refer to [22] for what regards ways of enhancing value creation in social-purpose organizations. BM in general is defined as the “design or architecture of the value creation, delivery, and capture mechanisms” of the firm. In the field of social entrepreneurship, the literature relates to value creation processes where the “social entrepreneurs” (namely, our artisans) are the central actors responsible for value creation through their actions and efforts [23]. However, current perspectives recognize BMs as a means of *collaborative interaction*. Considering technological platforms, in [24] cloud, IoT and edge-based platforms are regarded as novel products and services that meet a social need, “diffused through organizations whose primary purposes are social”, and that respond to modifications in social relations with new cultural orientations.

In this view, WECRAFT is an *engagement platform* based on a collaborative interaction type of BM, where the *analysis dimensions* consider the classification schema in Table I, where our values appear in italic.

TABLE I – VALUE SCHEMA IN CLASSIFICATION DIMENSIONS ([20]).

Parties	Objects	Time Scopes
B2B	<i>Physical Goods</i>	Static
B2C	Digital Goods	<i>Semi-dynamic</i>
<i>C2C</i>	<i>Services</i>	<i>Dynamic</i>
G2B	Physical Goods	Ultra-dynamic
G2C	Objects	

In WECRAFT we have *C2C* (Citizen-to-Citizen) *cooperation among parties*. *Objects* treated in the cooperation are *Physical Goods*, and *Services*. The *Time Scope* (namely, the stability of the relationship among parties) is typically *Semi-dynamic* (the relationship among parties is stable but can change e.g., when changing a usual payment partner still treating the same groups of transactions together, rather than singular changes for payments). The *Time Scope* can also be *Dynamic*, in that the relationship (e.g., producing an artisanship in cooperation)

is limited to the single order to a customer, while for different orders various different artisans cooperate.

For Services, we consider that WECRAFT should, by leveraging existing technological services, provide enhanced networking, and knowledge sharing services, based on virtual cooperation spaces for provisioning/distribution/selling of end products. We also consider multimedia resources services, market formation processes, engagement services with various actors and stakeholders groups. A group of services regards *videography* (defined in the literature as a form of visual anthropology encompassing the collection, analysis, and presentation of visual data used when capturing the emotions, gestures and facial expressions in addition to the spoken words of interviewees, which can then provide deeper insight).

Services supporting self-sustainability will include integrated services for financial support from buyers, sponsors, funders, donors, etc. in a crowdfunding perspective.

To make the platform sustainable Smart, services of self-production of multimedia material, links to resources such as maps and drawings tools, video-graphic content analysis, live observation during interviews can be suitable.

Finally, WECRAFT will support Co-Production via services of resource enhancement, such as internal collaboration and group formation, and inter-village partnerships, to overcome resource constraints and uncertainty.

IV. ACTORS AND FUNCTIONS OF WECRAFT

WECRAFT supports various forms of active participation by end-users and represents a dynamic networked system that allows collaborative exchanges at a national and international level. The platform envisions *three main typologies of users*.

1. *Artisans*, who might be not very familiar with advanced technology but are for sure endowed with a smartphone to access the platform using a mobile app. This category requires user-friendliness/simplicity in the interaction, with the possibility to:

- insert information about their products in a simple way, e.g., via keywords, names, videos, pictures; It should be possible to add keywords/tags directly on the platform to connect different people creatively, populating the network of artisans,
- sell to customers,
- get requests of personalization of their products by customers,
- manage payments,
- connect with other artisans via chats, instant messages, etc. to exchange knowledge about artefacts, manufacture techniques,
- cooperate with other artisans, e.g., in case of an order to be completed collectively.

Artisans constitute a *community* - the basic benefit of our proposal -, which gives visibility to the artisanship showing manufacture locations, such as houses, which are often the laboratory, where the artisan products take form, also through on-line connections to others' labs. The platform acts as a community enabler that creates actual *craft districts*. It complies with the situation of various villages, specialized in a product (e.g., carpets) that is produced within a village.

2. *Generic users and customers* are interested in buying artefacts. These users access the platform to

- Search and buy products of interest, supporting search by type of products (e.g., all the artisans or villages producing carpets) or other characteristics (e.g., by specifying the materials used in the manufacturing, like a specific precious stone).
- Issue orders that may be produced by a single artisan or by a district,
- Virtually visit villages and artisans and their "laboratories" on a geographical map enriched with information about the villages, where users can explore and compare products, and discover the different cultural identities of the villages,

3. *International Designers and Students*. They may access the platform to:

- Access e-learning tools and materials embedded in the platform, to enrich their skills about artisan products.
- Exchange and forward drawing, pictures, videos and in general multimedia material with artisans.

Figure 4 depicts three typologies of users, and the virtual communities created via WECRAFT: village and district. It also shows the basic functions derived from the business model.

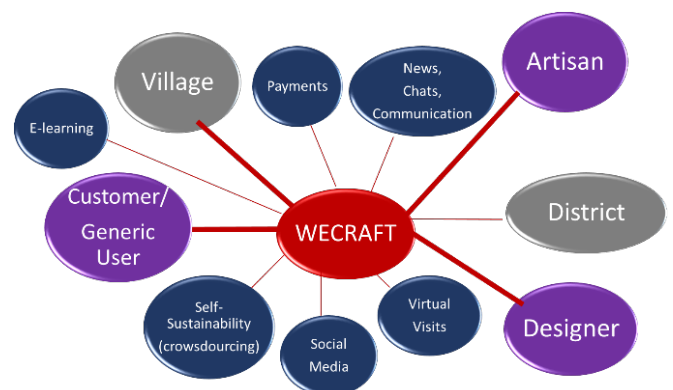


Fig. 4 Functions and services of WECRAFT (in black) and interacting parties (in blue: Artisan, Customer, Designer)

Figure 5 shows the possible interactions among artisans, who may build a network of villages and districts. In ovals, we represent actors, connected via dotted-line ovals to express the interactions, which constitute a Scenario [20].

- In Scenario 1, artisans A and B living in the same village cooperate in the production of the same artefact; Scenario 1 represents a *village*.
- In Scenario 2, artisans B and D produce different artefacts interacting with designers for exchange of knowledge, orders, e-learning, etc.;
- In Scenario 3, artisans C and D produce different artefacts (e.g., table crafts and pottery) and cooperate e.g., for the promotion of product visibility, or crowdfunding;
- Scenario 4 represents a *district* where A,B and C,D interact for a mixed provisioning of artifacts, for exchange of products, and of knowledge.

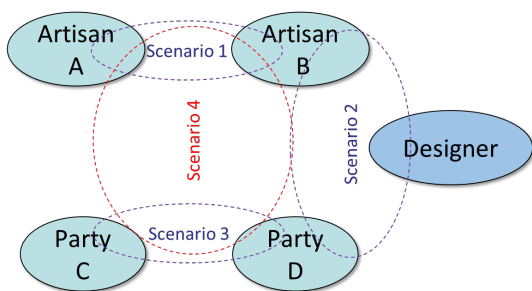


Fig. 5 Main scenarios in the WECRAFT business model.

In Figure 5, the *dynamic* time scope is the possibility to join and leave the platform on a need-to-share basis. Some cooperation in Figure 5 (e.g., in Scenario 2) are ultra-dynamic, in that some artisans can join artisan groups on the fly, e.g., to complete an order for a designer.

V. WECRAFT ARCHITECTURE

The main architectural characteristics of the platform are:

- *Front-end* applications to allow users to interact with the system: Artisans interact using an App that includes processing capabilities for local data management (user credentials, authentication method, basic calendars functions, etc.) with a simple and usable interface; designers and customers can interact both via mobile and web interfaces.
- A *Back End* (BE) in Cloud from a standard provider at low cost. This stores all the *data* supporting the various functionality, manages *Privacy, security, ethics and trademarks* and provides the services implementing the business logic of the platform.

The main modules of the BE include:

- An *Interface* for each typology of user, to access the area supporting the corresponding functionalities described in the previous section, organized into the following four modules;
- An *e-commerce* module supporting the *selling* of artefacts to customers (from the publication of new artefacts to payment);
- A *Virtual Visit* module, providing an enriched visual map to explore and virtually visit villages,

thus helping villagers to promote their products and culture.

- An *E-Commerce* module that supports buying and selling.
- A *Cooperation and Coproduction* module, to let cluster/districts of artisans cooperate, for example, to carry out large-scale orders (e.g., the order of hundreds of carpets for a chain of hotels).
- An *E-Learning* module to support direct interaction with clients and exchange materials and ideas with young designers; to allow design schools to train their students directly on site through simple video-calls with the artisans explaining their artisanal skills and art.

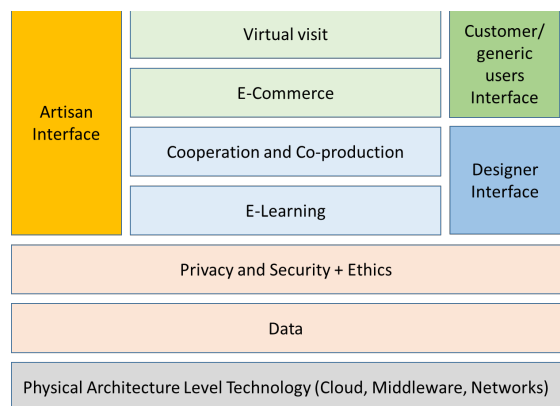


Fig. 6 Technological Components of WECRAFT Architecture.

VI. ENHANCING AND PROTECTING COOPERATION AMONG ARTISANS

An important issue to be handled regards *privacy and security* to protect the authorship of the products (material related to crafts such as design features, videos of the artisans, pics, photos, etc.), information about product components and the way of combining materials to form a handicraft product, and so on. For system access, authentication based on credentials with user-id/password seems to be sufficient on the app. For products, a “soft copyright” - easy to be handled, but strong enough to defend the cultural value inherent in products fabrication - is needed. Various copyright alternatives can be considered, such as alternative compensation systems (ways to allow the reproduction of digital copyrighted works) while preserving the owners of those works. Some form of government intervention can also be foreseen. Other models, such as collective licenses, could be employed as “alternative compensation systems” although very different and less effective. WECRAFT will consider the widespread use of peer-to-peer file sharing networks but could go further, considering that file sharing is beneficial, and that tax or levy funded systems are desirable tools for protecting artisans work in forms analogous to Digital Right Management technologies.

A further protection requirement comes from elements that will be necessarily stored in the Back End databases of WECRAFT. Images, pictures, and other multimedia issues regarding the artefacts/craftsmen products are likely to be stored in the databases and hence an access control system is needed.

VII. CONCLUDING REMARKS

In the databases, instead, information about the process of production will not need to be stored and hence protected, since it remains a property of artisans.

An element that will surely persist in the database will be the *set of interactions among parties* and the *lists of customers*, and of *interacting subjects*. Such information about: customers, contacts, events of interaction, transactions of buy/sell and of cooperative artisanship needs to be secured via access control and partly via cryptography.

For payments, we consider an intermediary partner connected to WECRAFT. Currently, in India, Paytm offers utility payment services, telephone top-ups, transport tickets. In addition, Google Pay, can be added to facilitate *direct digital payments for retailers, without intermediaries*. Other candidates are PhonePe (India's largest online shopping platform), MobiKwik (20 million credit cards, customers such as Uber, Zomato, Delhivery, Dominos, a 107 million user base and 3 million retailers), and Amazon Pay, which has recently launched P2P payments on Android, integrating UPI into Amazon apps. Some functions of the WECRAFT business model could be also be provided by the selected payment intermediaries, but we cannot make any hypothesis on this point at the time being. Analogously, online platforms that act as centralized portals enabling *direct transactions between buyers and sellers* can be employed. However, these are limited to the e-commerce functions. From early pioneering platforms such as eBay and Amazon, to more recent and successful ones such as Shopify, Etsy and Kickstarter, we have witnessed the development of an extremely diverse platform industry globally, offering both customers and suppliers access to new markets and new opportunities. We consider that these platforms are sufficiently available even to rural villages to enable payments. Surely, tailoring will be needed, but we consider that using some functions already provided by these platforms can ensure functions at the Physical Architecture Level Technology of Figure 6. Instead, other services to be provided as a support to living tradition or to smart communities need ad-hoc designed services.

Another aspect to consider is that of *ethics*. To protect the value of such cultural heritage, some forms of consensus have to be provided on the app in a tick form, to enable enforcing the protection of what is delivered and of people at work. Analogously to what exists for "Made in Italy" protection <https://codiceetico.org/>, the platform has to provide an informed consensus to the objects and people involved in trading. Since it is unthinkable to apply an ethical code neither voluntary nor collective to this field, due to the very nature of the cooperation, we are considering some simplified form of ethical code, able to represent the role of the artisan as a source of relationships with various subjects, which also determine his competitive profile on the market.

It means moving from the concept of individual social responsibility of the entrepreneur and the single company) to that of (collective) territorial social responsibility through the creation of the "responsible economic district", starting to think about parameters and indicators that combine economic development and fairness of producers.

Ethics involves also agreements on the upload of images regarding possible minors present in the pictures.

India is a country with great history, creativity and potential, which should not die under the pressure of globalization and urbanization processes.

Our current difficult times should not be the final hammer to marginalised realities but must become an opportunity to find a sustainable solution that should have as a primary priority to benefit artisans and craftsmen from all over India.

The common wrong idea is that the artisans are "out of date" and they should become "smart", villages should become "high tech". The truth is more the opposite, technology should be customized to address the needs of the people.

Starting from people's needs, sustainability principles, respect for tradition and heritage, circular economy are all basic principles that inspired the concept of the WECRAFT platform.

Currently, the design of the platform has been proposed to the Indian Trust for Rural Heritage and Development (ITRHD) for approval and further development.

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