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# Craft and Sustainability: Potential for Design Intervention in Crafts in the Yangtze River Delta, China

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**Abstract:** Modern manufacturing for global markets tends to homogenize material culture through its centralized production and divisive production process. In contrast, craft practices usually have a strong local identity through their application of holistic making practices, context-based knowledge, culturally specific responses and community-centred production. This form of locally-based, customizable and responsive production is discussed here in terms of its relationship to sustainability and as a promising direction for future manufacturing. Despite the potentially strong relationship between craft and sustainability, there is still only limited research exploring this relationship and how craft can more effectively contribute to contemporary industry and life in general. This paper begins by developing an understanding of the relationship between craft and sustainability. From this, we identify: 1) barriers to craft's development for sustainability, and 2) potential directions to which design can contribute. We then provide an analysis of the current state of crafts in the Yangtze River Delta (YRD) and identify the challenges and potential for design interventions in this region.

**Keywords:** Craft, Sustainability, Design Intervention, The Yangtze River Delta

## 1. Introduction

Craft is a form of production in which culturally significant designs, products and practices can be manifested (Jung et al., 2015). The relationship between craft and sustainability has been extensively discussed in recent decades and, as a consequence, we are currently seeing a revival of interest in traditional craft practices all over the world. Some research has been undertaken in this field; for example, proposals for the Interreg Atlantic funding envelope (<http://www.atlanticarea.eu/>) focus on local, cultural practices and traditions.

The Yangtze River Delta (YRD), the region of interest for this present research, has a long history of craft practices, among which, some are recognized as *Intangible Cultural Heritage* at the international, national and provincial levels (see, for example: UNESCO, 2008). However, this region

is also one of China's most developed and highly concentrated industrial areas. The region is currently witnessing an emergent interest in creative industries, maker culture and craft revival initiatives. Given this, our concern is how to integrate the various elements present in this region – excellent crafts, dynamically technological developments, and a growing economy – in order to work towards a sustainable future. In particular, we are interested in the potential for design to make constructive contributions, including the potential for a renewed relationship between craft and industrial manufacturing through the bridging opportunities offered by contemporary technologies.

This paper attempts to understand the relationship between craft and sustainability, through which we identify potential areas for intervention. Initial findings, emerging from analyses of literature, suggest four directions that have potential for design intervention. Based on both primary and secondary researches, these initial findings: a) provide guidance for scoping the research to examine the current status of craft in the YRD, and b) will inform the programme for the in-depth field research.

## 2. Crafts and Sustainability

For centuries, craft has been echoing the rhythms of daily life with its rich materiality, deep-rooted cultural identity and intrinsic values, such as providing good-quality work, expressing cultural and ethical mores and so on. It is generally accepted that craft and craftsmanship are essentially consistent with the principles of sustainability. Based on common ideas found in the literature (Lucie-Smith, 1981; Adamson, 2007, 2010; Dormer, 1997; Risatti, 2007; Sennett, 2008), the principal characteristics of craft can be identified as below.

- **Specialized knowledge:** this is an essential feature of craft, similar to technique, which is also called tacit knowledge (Shiner, 2012, p.236; Sennett, 2008, p.95) or "bodily-kinaesthetic intelligence" (Metcalf, 1997, pp.74-75);
- **Localization:** craft making and production are based on local materials, locally appropriate techniques and forms (Adamson, 2010, p.3; Walker, 2006, p.36);
- **Ethics and authenticity:** makers working in craft have the freedom to manipulate materials and tools, and to engage with the whole process, which is claimed by a number of scholars to be an ethical and authentic model for work and life (e.g. Risatti, 2007, pp.388-399);
- **Continuation of tradition:** a craft artefact is an embodiment of culture, custom and belief; the skills and knowledge required for its production are traditionally handed down from one generation to the next (Lucie-Smith, 1981, p.19). Thus, through both objects and practices, there is continuity and an accumulation of meanings related to material culture.

In the field of design for sustainability, there are evolving understandings and visions of sustainability, such as the *Quadruple Bottom Line* (Walker, 2011, p.127), and *Transition Design* (Irwin, 2015), which identify the need for a systemic shift in outlook and approaches<sup>1</sup>. These holistic approaches, which resonate with the theory of holism (Kossoff, 2015) and a systemic view of life (Capra & Luisi, 2014), share the common concepts of self-organization, interconnectedness,

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<sup>1</sup> **This important shift** results from a growing awareness of a new body of interdisciplinary knowledge based on discoveries in frontier science and sociology (Meadows 2008; Kossoff, 2011; Capra and Luisi, 2014; Irwin, 2015). These new theories collectively indicate the significant concepts of interconnectedness within ecosystem and social organization. Informed by these thoughts, the visions of Design for Sustainability and other approaches are applied to change from mechanistically reductionist solutions to more holistic, long-term and systemic ones (Kossoff, 2011; Irwin, 2015).

cosmopolitan localization and symbiosis. This vision of sustainable futures asks us to reflect on our current lifestyles and suggests a reconstitution of everyday life. It is a direction that also resonates with the developing concept of *Re-distributed Manufacturing*<sup>2</sup> in economics and business. These ideas and concepts can already be found, to a considerable extent, in traditional craft production. Craft's flexible, localized, customizable form of manufacturing is consistent both with this emergent direction and with anticipated megatrends (Prendeville, 2016).

However, even though there are strong connections between craft and sustainability, there are also incompatibilities and contradictions. Overcoming these potential difficulties will be an important aspect of any specific proposals for intervention. In light of this, the relationship between craft and visions of sustainability can be presented in terms of Accordances and Tensions, as shown in Table 1.

*For Table 1, please see the next page*

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<sup>2</sup> **Re-distributed Manufacturing** is an emerging concept which describes the expected localization of production from large-scale mass manufacturing plants to smaller-scale production units, largely driven by digital technology (EPSRC, 2013). It is anticipated as the megatrend of future forms of manufacturing that will reduce energy and supply chain costs (Prendeville, 2016).

Table 1 The Relationship between Crafts and Sustainability in terms of Accordances and Tensions

Accordances		Tensions	
<b>Localism</b>	<ul style="list-style-type: none"> <li>• Craft utilizes local resources, local knowledge, and aims to satisfy local human needs.</li> <li>• Craft contributes to community-based lifestyles and cultural identity, and is therefore consistent with the cultural diversity and place-based living systems of sustainability.</li> </ul>	<b>Cosmopolitanism</b>	<ul style="list-style-type: none"> <li>• Cosmopolitanism is a key concept of sustainability, which means the ability to exchange knowledge and technology between communities.</li> <li>• Crafts have deep relations to specific places, which can make them closed, isolated and lacking a global view and reluctant to engage in exchange.</li> <li>• Many traditional folk crafts are located in remotely rural areas where they are isolated from modern technology and the global economy.</li> </ul>
<b>Eco-effectiveness</b>	<ul style="list-style-type: none"> <li>• Craft often features natural preindustrial materials, most of which are within the closed loop of eco-system, such as wood, bamboo, clay, cotton, metals. Also, many crafts are produced using only human labour, without machines or electrical energy.</li> <li>• This is in accord with the aim of effective sustainable approaches (circular economy, C2C) – i.e. not necessarily efficient but effective, waste from one process is a resource for another (Ellen MacArthur</li> </ul>	<b>Productivity</b>	<ul style="list-style-type: none"> <li>• Craft based on the traditionally pre-industrial technique is uncompetitive against the modern machine and advanced technology in term of productivity (but modern production generally ignores the full social and environmental costs)</li> <li>• Generally, craft production takes more time to produce. As this time is actually human labour, costs will be higher. A handmade iron pot may take days or weeks to finish, while an industrial equivalent may take minutes or hours.</li> </ul>
<b>Resilient system</b>	<ul style="list-style-type: none"> <li>• Modern production systems are recognized as fragile and pose a risk to living system (Walker and Salt, 2006). “Local” is the central vision of holistic sustainability to overcome this fragility.</li> <li>• Craft production is small-scale, diverse and distributed and has the potential to operate as usual when face climate, social and economic crises.</li> </ul>	<b>Economic viability</b>	<ul style="list-style-type: none"> <li>• Most craft cannot maintain financial viability in the modern economic system. Craftspeople cannot make living by making craft. Compared to their inputs in production, the market price does not match the value and cost.</li> </ul>
<b>Lifestyle</b>	<ul style="list-style-type: none"> <li>• Revision of lifestyle is an essential issue within the holistic understanding of sustainability.</li> <li>• Modern lifestyles are rather distracting in terms of using product and dealing with everyday affairs (Walker, 2014).</li> <li>• Traditional crafts are made to meet human needs through local, culturally relevant processes. In the whole making process, people manipulate materials and tools with creativity and human intimacy; when the product is used, this aspects of the making often arouse a real appreciation and empathy.</li> <li>• Values are created through this process so as to construct a contextualized lifestyle that helps rectify current unsustainable ways of living.</li> </ul>		

### 3. Design Intervention: Inheritance with Innovation

From the above, craft can be understood as being inherently consistent with the vision of sustainability, yet there remain tensions and difficulties. It is necessary to address these so that craft can more effectively contribute to the development of a sustainable society. Design has the potential to make a difference because it is able to contribute meaningful solutions to multidisciplinary problems (Irwin, 2015). Craft conforms to the principles of sustainability in terms of:

- Localization
- Eco-effectiveness
- Resilient systems
- Contextualized lifestyles.

These four accordances between craft and sustainability offer a significant lead for design intervention, namely: *continuation through heritage craftsmanship, culture and tradition*. In addressing the identified tensions, another three potential directions emerge:

- Achieve cosmopolitanism by opening up to the world through knowledge exchange;
- Where appropriate, address productivity concerns through careful use of advanced techniques (but without destroying the very things we wish to preserve – good work, localism, resilience etc.);
- Increase economic viability through value creation and developing entrepreneurial skills.

Within these directions, there are many opportunities for design to contribute in terms of product, service, communication design and branding, and related design methods. These design opportunities can be summarized as **inheritance with innovation**.

### 4. Craft in the Yangtze River Delta (YRD)

Based on secondary data, as well as observations from site visits, this section briefly introduces the current state of crafts in the YRD, and analyzes problems and challenges facing the development of crafts in this region.

#### 4.1 Yangtze River Delta

The Yangtze River Delta is located on the central eastern coast of China. This region, comprising forty-one cities, has grown into one of the most influential metropolitan areas in the world. It plays an important role in China's economic and social development because of its intensively dynamic creative industries (Tian et al., 2011). The city of Jingdezhen in Northeast Jiangxi province is included in the YRD territory (PGJP, 2016) and appears on YRD tourist board maps. This city has been the dominant city in China's porcelain industry, and has had a huge impact on the history of porcelain worldwide. For these reasons, this research will also include the city of Jingdezhen.

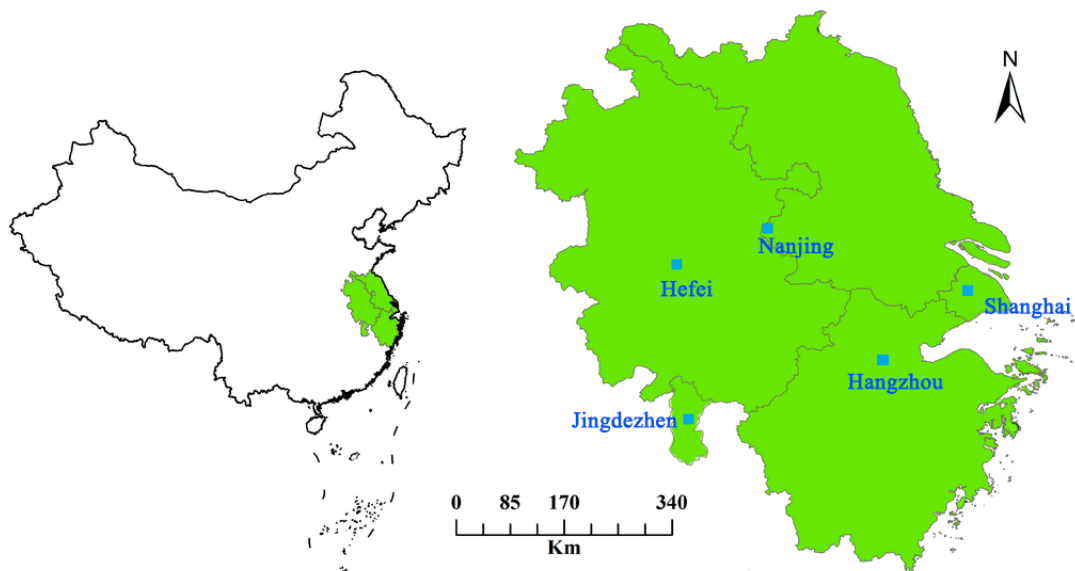


Figure 1. Location of the YRD in China, drawn by the author.

## 4.2 Major Crafts in the Yangtze River Delta

Crafts in China are mostly recorded and studied in: 1) the field of (Folk) Arts and Crafts (Tang, 2003, 2006; Zhang, 2009; Hang, 2013; Shi, et al., 2003, pp.99-103); 2) Archaeology and anthropology; 3) the intersection between Design and the Cultural and Creative Industries; and 4) the sector of “Intangible Cultural Heritage” (ICH) (ICH China, 2011). This current research is based on literature and data from these four related fields. In the ICH website list, there are two categories related to craft: traditional fine art and traditional craftsmanship, see Figure 2.

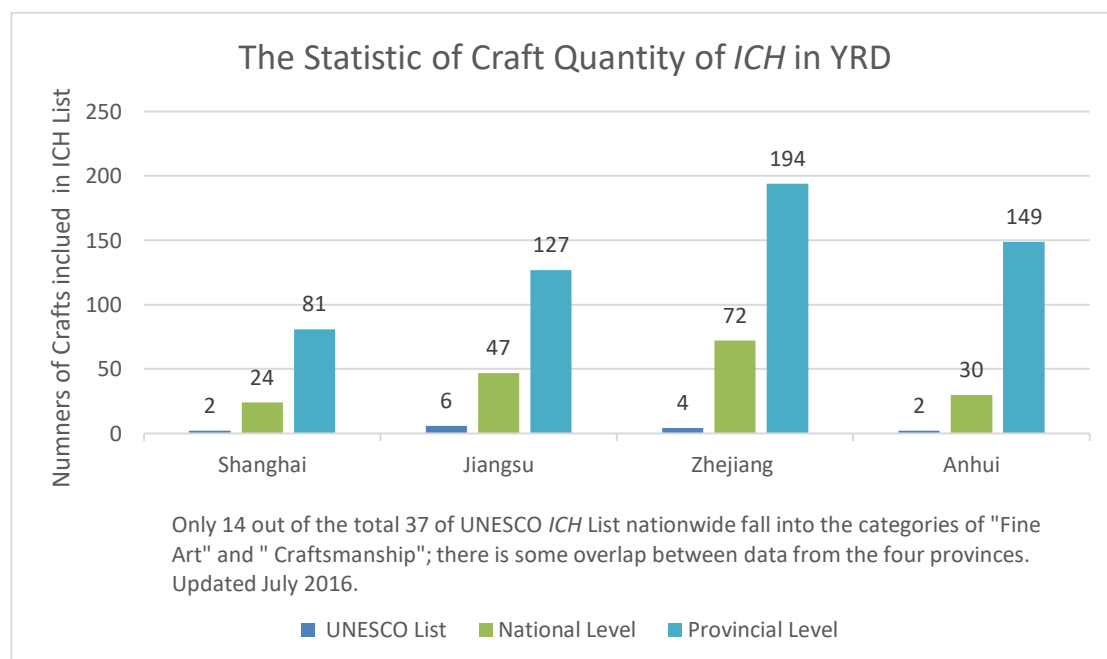


Figure 2. Statistics of Craft Quantity of ICH in YRD, source come from ICH Jiangsu, ICH Zhejiang, ICH Shanghai, ICH Anhui, ICH China.

Being listed as *Intangible Cultural Heritage* does not necessarily mean these crafts are viable and well-protected. In fact, many of them are not used in daily life and some risk extinction, such as the



Panjin silk rug and some Hui ethnic crafts (CMP, 2012; CNR,2016). Relatively speaking, utilitarian crafts could easily be revitalized and reintroduced into daily life. According to the statistics, among about 700 crafts in the YRD that have been recognized as *Intangible Cultural Heritage*, utilitarian object-based crafts fall into two main categories: porcelain and textile (*ICH* China, UNESCO, *ICH* Jiangsu, *ICH* Zhejiang, *ICH* Shanghai, *ICH* Anhui). Therefore, these two categories are identified as the primary subjects for future research and exploration.

### 4.3 Forms of Crafts development

Craft practices have continued into contemporary life in the YRD, but in highly dynamic and diverse forms. There is a wide variety of craft development forms in this region: some are historically important brands such as Zhang Xiaoquan (张小泉) Scissor Ltd. and Qian Taixiang (乾泰祥) Silk Company; some are place-based, specialized craft industries, such as porcelain manufacturing in Longquan city and Jingdezhen city; others are companies that integrate traditional crafts into modern design, such as Shang Xia Ltd (<http://www.shang-xia.com>), which produces a wide range of products that include apparel, jewellery, homeware, furniture and giftware; some are new initiatives, such as the New Channel Gaeml social innovation project (APP: New Channel) and the Near-Far craft revival project (<http://www.far-near.com>). These craft initiatives are dedicated to safeguarding traditional crafts from decline and they promote craft communities. Hence, the challenges faced by crafts in the YRD are also diverse and dynamic.

### 4.4 Problems, Challenges and Opportunities

Despite China's excellent history in porcelain and textile manufacturing, these sectors have undergone a depression and encountered obstacles for several decades. According to a number of authors (Lan, 2009; Wang, 2010; Lu, 2012; Tang, 2013; Xu & Yu, 2014; Liu & Zou, 2014, p.386; An, 2015), the problems facing the craft industries can be summed up as follows:

- The portion of everyday use products is limited, especially *Longquan* Celadon (green-glazed Chinese ceramics); the potential markets for everyday use crafts have not been developed.
- Rapid consumption results in a shortage of resources and degrades the craft's intrinsic value (craftsmanship, creativity, design, cultural identity etc.)
- Creativity and originality are not appropriately valued. Most craft techniques lack innovation and imagination.
- Craft innovations are poorly linked to modern technologies, especially digital. (e.g. craft-product design, service, etc.); cross-sector collaborations among heritage crafts, design, science and technologies are limited and overlooked.
- Craft academic education is out of line with craft industry; craft education values creativity yet devalues technique and craftsmanship, while the craft market values material scarcity and technique yet devalues creativity and design.

However, the YRD is a metropolitan region with a vibrant economy and many creative industries. This is also an opportunity for traditional crafts and culture to revitalize and be relevant in everyday life and responsive to the region's advanced technologies and creative industries. How to respond to ever-advancing technologies offers a great opportunity to the crafts sector – it could mean crafts becoming integrated with advanced technologies or crafts being complementary to advanced technologies.

## 5. The Role of Design

### 5.1 Potential Directions for Design Intervention

From initial findings, as discussed in Section 3, the extent of the gap between craft and contemporary technology and innovative thinking could be a major issue needing extensive research. Accordingly, four potential directions for design intervention in the crafts' development are identified below:

- **Inheritance of craftsmanship, culture and tradition:** passing down place-based craftsmanship in terms of materials, skills and the making process is a way to revitalize it and reintroduce it into everyday life. In this direction, we should be aware that the domain of everyday life (Kossoff, 2015, p. 35) is the key issue, which means consideration of contemporary culture, lifestyle, market and other related factors should be taken into account. The market and commercialization are very important and sensitive issues that need particularly thoughtful intervention. Crafts in the YRD are well protected in the form of documentation such as museum displays, digital databases and craft archives, but there is a lack of protection for the practices themselves and for sustaining production. As a means of safeguarding *Intangible Cultural Heritage*, protection of production is the most recognized but also the most complex and controversial (Zhao & Li, 2013). It is very challenging to revitalize traditional crafts into commercial productions in ways that are consistent with the principles of sustainability.
- **Open up to the world:** this direction is supported by Lou (2016), who claims that the development of heritage crafts in China should aim for contemporary transformation through modern design and engagement with the world. This suggests a need to improve the ability of the craft community via updating technology, information exchange and international communication. This would expand local craftspeople's knowledge regarding frontier designs and diverse cultures, as well as enhancing their global perspectives. Design interventions in this potential direction mainly involve service design, interaction and participatory design approaches.
- **Technique and innovation:** the issue of craft productivity is an inevitable problem in contemporary society, and is also one of the driving forces for crafts entering commercial production and everyday life. Recent years have witnessed an acceleration of collaborative innovations among making (craft), new technologies and entrepreneurial approaches<sup>3</sup> (KPMG, 2016). These include: improving and innovating traditional crafts by appropriately adopting alternative materials, engineering and technologies; improving its efficiency and productivity, yet not compromising its spirit and craftsmanship. However, it is significant that there is no evidence showing that the quantity of material goods contributes to human well-being; rather that an overabundance of commercial products lies at the root of an unsustainable lifestyle and people's unhappiness (Walker, 2014; Davies, 2015). Given that craft production can meet basic needs, productivity is not an issue, while improving quality not quantity should be prioritized. Meanwhile, there is an experimental trend that encourages design for repair and upgrade to prolong a product's life-span and reduce resource consumption (Lockton, 2013; Mead, 2015).

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<sup>3</sup> These cross-sector collaborations are driven by a series of explorations for opportunities for economic growth in the UK, whose impacts are expected to be coherent with the anticipated industrial transformation – the fourth industrial revolution. (Schwab, 2016).

- **Value creation and developing entrepreneurial skill:** values attributed to crafts in the YRD are underestimated and need specific renewal and promotion. There are three levels of meaning of value: creation-financial, utility and symbolic; and value could be created from tangible and intangible assets (Bowman and Ambrosini, 2003; Ernst & Young LLP, 2013). Value is not only measured quantitatively (financial and tangible), but also qualitatively (utility and intangible), which includes three overlapping areas: functional utility (what the product does), economic utility (how much it costs) and emotional implication (how it makes people feel and think) (ibid, p.5). First, we need to rediscover a craft's intrinsic values that are based on the craft itself (know-how, techniques, materials), as well as its social ethics and cultural identity, so as to re-appreciate its cultural value, and its meaning to makers, people in the community and, potentially, people elsewhere. Second, value creation could be realized by exploring the prominent possibilities on a business scale (Dodgson, 2011). The new trend of innovation and value creation should rely on mass customization and innovative products and services instead of reducing costs and increasing efficiency (Hughes, 2013). Compared to Italy, France and the UK, well-known brands and trademarks are scarce in crafts in the YRD, and most of those existing in the market are not competitive. One possibility, therefore, is to create high-quality brands and high-value crafts by developing entrepreneurial skills based on the principles of value creation.

## 5.2 Areas of Design Intervention

Design has evolved from designing single products to focusing on interaction, systems and activities. Within the spectrum of the four orders of design: graphics, products, interaction and systems (Buchanan, 2001, pp.3-23), craft as a human-centred object and activity can be supported by each of these. There are overlaps within these four stages that result in several related factors: production, market and promotion (strategy). Accordingly, and referencing the four potential directions in Section 4.1, detailed propositions for using design methods and strategies to intervene in the development of crafts in the YRD are proposed at multiple levels, and presented in Table 2 below.

- **Product level:** Walker (2016) loosely classifies product design into three categories: 1) traditional crafts, which are worthy, enduring, bear significant meaning, and slow to change; 2) industrial design, which is design for mass production, dependent on technology and homogeneity; and 3) design-maker, which is a creative product model emerging with contemporary materials, culture and technologies. Potentially, traditional craft can be modified by the other two categories. Traditional craftsmanship could be combined with creativity that relates to contemporary sensibilities in order to produce timely products to meet contemporary needs. In addition, design interventions in craft could address issues of material shortage; new craft product designs could reduce the amount of non-renewable materials and increase the use of renewable materials through creative solutions and new development of biotech materials.
- **Production level:** here there are two aspects for design intervention: 1) developing a re-distributed manufacturing model (local resources, local and global consumption, local production workshops) (Prendeville, 2016); and 2) valuing the making process within place-based workshops, and to some extent, integrating making and consuming. Through the act of making, the new 'prosumer' (i.e. the person who becomes involved in the design and customization of products to meet their specific

need) can foster a stronger connection with the craft being made (Kohtala & Hyysalo, 2015) and therefore a longer product lifespan can be expected and emotional values can be created.

- **Promotion level:** creating crafts' popularity through storytelling and visualizing the craftsmanship, revealing the local cultural contexts and historical landscapes; visualizing information about the YRD to reveal the current situation and any gaps to the municipal government for policy and financial support; effectively reusing and renovating historic buildings and sites.
- **Market level:** targeting markets from the high, middle and low ends, from the local, domestic to the international, from the mass to the niche. Here, each level of the market would require valuable products that integrate craftsmanship with contemporary creativity. Market value standards could be based on the degree of: 1) inheriting traditional techniques and materials, and 2) innovating techniques, materials and design. To realize these directions, there would be a need to establish standards of entry for the domestic market. Another approach to open untapped markets would be to develop customized and bespoke artefacts that could raise the crafts' market values.
- **Education level:** increasing and expanding collaborations between universities and industries; reviving apprenticeships inside and outside the academic education system; transdisciplinary collaboration and open innovation between science, engineering, business, craft and design; creating maker-spaces within and outside universities.

Table 2. Potential Areas of 1) design intervention in YRD & 2) critical reflection implications for craft

<b>Potential Areas of 1) design intervention in YRD &amp; 2) critical reflection implications for craft</b>			
<b>Open up to the world</b> (Cosmopolitanism)	<b>Technique innovation</b> (Productivity)	<b>Values creation &amp; entrepreneurial skill</b> (Economic viability)	<b>Inheritance</b> (Continuation)
<b>Product Level</b>			
<ul style="list-style-type: none"> <li>• <b>Transformation of crafts' functions</b>, e.g. from decoration to utility: integrating the elements (pattern, material, use) of other crafts to porcelain or textile</li> <li>• <b>Modification and redesign</b> of crafts by drawing on contemporary design and sensibilities</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriate use of <b>Bio-gradable materials</b></li> <li>• Technique improvement, e.g. modern kiln</li> <li>• Supplement to making process by 3D printing, laser cutting, digital weaving, etc. yet not destroying craftsmanship</li> <li>• <b>Innovation across traditional techniques</b> e.g. black pottery with bamboo charcoal technique</li> </ul>	<ul style="list-style-type: none"> <li>• Crafts innovation in function, form, use and materials with modern design</li> <li>• Design crafts for longevity and repair</li> <li>• Value increase by focusing on input in <b>craftsmanship, creativity, innovation, originality</b> and <b>emotion</b></li> <li>• Construction of fine brand crafts</li> <li>• Revival of old brand crafts</li> <li>• Reinterpretation of craft-related stories</li> </ul>	<ul style="list-style-type: none"> <li>• Regeneration of typically traditional crafts forms, types and usage.</li> <li>• Preservation of locally featured materials</li> <li>• Revival of techniques, methods and making processes</li> <li>• Focusing on high quality <b>hand skills</b></li> </ul>
<b>Production Level</b>			
<ul style="list-style-type: none"> <li>• Visiting and drawing lessons from advanced production models, especially <b>makespaces</b> and fab labs</li> </ul>	<ul style="list-style-type: none"> <li>• Innovation of production control and management by appropriate digital technologies</li> </ul>	<ul style="list-style-type: none"> <li>• Creation of makespaces for making, DIY, repairing products to add to products' emotional values</li> <li>• Creation of <b>lifestyle</b> that integrates work and life into one</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Localization</b> of factories, studio and workshops</li> <li>• Local workforce</li> <li>• Local resources</li> </ul>
<b>Promotion Level</b>			

Continue with the next page

<ul style="list-style-type: none"> <li>• International exhibitions and related art events</li> <li>• Interactive and digital museums</li> <li>• <b>Knowledge exchange</b> activities (forum, workshop and symposium)</li> <li>• International conference for craftspeople, artisans and artists</li> </ul>	<ul style="list-style-type: none"> <li>• Interrelating individual artists, galleries, museums, and shops globally through construction of digital platforms, websites and Apps</li> <li>• A series of transformation of <b>historical buildings</b> or studios through modern design and technologies</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Storytelling and narratives</b> of heritage crafts</li> <li>• Excavation of related cultural context, landscape and architecture</li> <li>• Development of brochure with ‘artisan workshops’ map including artisans’ stories</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Visualization</b> of craftsmanship, technique and process.</li> <li>• Making use of <b>historical sites</b> or buildings such as studios, museums and shops (e.g. Jingdezhen old kiln sites, residential houses of Wuzhen town)</li> </ul>
<b>Market Level</b>			
<ul style="list-style-type: none"> <li>• Development of international and daily use market,</li> </ul>	<ul style="list-style-type: none"> <li>• Construction of websites and digital platforms for selling products and market analysis (WeChat, App, C2C)</li> </ul>	<ul style="list-style-type: none"> <li>• Exploration of untapped market for specific needs</li> <li>• Branding &amp; trademark</li> <li>• High market value based on <b>high quality hand skills</b> and solutions to people’s potential problems</li> </ul>	<ul style="list-style-type: none"> <li>• Preservation of historic marketplaces</li> <li>• Development of customisation and bespoke objects</li> <li>• Development of local market to meet local needs</li> </ul>
<b>Education Level</b>			
<ul style="list-style-type: none"> <li>• Programme of student exchange with international universities</li> <li>• Training course in design and marketing for local artisans</li> </ul>	<ul style="list-style-type: none"> <li>• Course construction of open source software</li> <li>• Biotechnology course</li> <li>• Emphasis on education for increasing students’ ability in technical innovation across discipline, modern and traditional</li> </ul>	<ul style="list-style-type: none"> <li>• Improvement of students’ proficiency both in <b>craftsmanship</b> and <b>modern design</b></li> <li>• Increasing students’ understanding of region-related traditional culture</li> </ul>	<ul style="list-style-type: none"> <li>• Support of inheritors and <b>craftspeople</b></li> <li>• Development of <b>apprenticeship</b> within academic education</li> </ul>

## 6. Conclusions

From the potential design interventions above, it is found that the development of crafts can be regarded as a craftsmanship-centred comprehensive system that places value creation at its core. Craftsmanship, innovation, technology and knowledge exchange are the key factors to be considered within this interrelated system. These directions require critical reflection and deeper consideration informed by additional, context-related primary research carried out in the YRD itself. Notably, each factor can affect every other level in terms of the product’s production, market, policy support and

education. This discussion has also revealed that there could be benefits to trans-sector collaboration between traditional crafts and digital and material technologies. This is one possibility for revitalizing crafts towards a sustainable future – but, potentially, such a direction could destroy many of those aspects of craft practices and craft products that are of most value. Consequently, any such directions need to be critically reviewed and require very careful, context-based considerations.

This paper has contributed to the current discourse on the development of crafts, and offered four potential directions and corresponding propositional suggestions for design interventions related to the craft sector. Based on the literature review and the author's insights and observations, these findings and propositions offer a framework for shaping the next in-depth field research in the YRD, and will be examined and validated in the process.

## References

- Adamson, G. (2007). *Thinking Through Craft*, Oxford: Berg.
- Adamson, G. (2010). *The Craft Reader*, Oxford: Berg.
- An, Y. (2015). *Research on the Production and Utilization of Ceramic Cultural Settlements in Jingdezhen*. (MA Dissertation). In: Jiangxi Normal University. China: Nanchang. Retrieved January, 12, 2016 from [http://epub.cnki.net/kns/brief/default\\_result.aspx](http://epub.cnki.net/kns/brief/default_result.aspx).
- Bowman, C. & Ambrosini, V. (2003). What Does Value Mean and How Is It Created, Maintained and Destroyed? *Cranfield CERES*. Retrieved November 16, 2016 from <https://dspace.lib.cranfield.ac.uk/handle/1826/3254>.
- Buchanan, R. (2001). Design Research and the New Learning. *Design Issues*, 17(4), 3–23.
- Capra, F. & Luisi, P. L. (2014). *The Systems View of Life: A Unifying Vision*. Cambridge: Cambridge University Press.
- CMP. [China Morning Post]. (2012). 盤金絲毯瀕臨滅絕 手工藝人耗時兩年緊急搶救 [Two Years' Rescue: Panjin Silk Rug Is Risking Extinction]. Retrieved October 1, 2016 from <http://culture.people.com.cn/BIG5/n/2012/1203/c172318-19776064.html>.
- CNR [China's National Religion] (2016). *Craftsmanship Are Risking Extinction in Ningxia Province*. China. Retrieved October 2, 2016 from <http://www.mzb.com.cn/html/report/160726837-1.htm>.
- Davies, W. (2015). *The Happiness Industry: How the Government and Big Business Sold Us Well-Being*. New York: Verso.
- Dodgson, M. (2011). Exploring New Combinations in Innovation and Entrepreneurship: Social Networks, Schumpeter, and the Case of Josiah Wedgwood (1730–1795). *Industrial and Corporate Change*, 20 (4), 1119–1151. Retrieved November 1, 2016 from <http://icc.oxfordjournals.org.ezproxy.lancs.ac.uk/content/20/4/1119.full.pdf+html>.
- Dormer, P. (1997). *The Culture of Craft*. Manchester: Manchester University Press.
- Ellen MacArthur Foundation (2012). *Towards the Circular Economy: an economic and business rationale for an accelerated transition*. Retrieved July 5, 2016 from <https://www.ellenmacarthurfoundation.org/assets/downloads/publications/Ellen-MacArthur-Foundation-Towards-the-Circular-Economy-vol.1.pdf>.
- EPSRC (2013). *Redistributed Manufacturing Workshop Report*. Retrieved October 15, 2016 from <https://www.epsrc.ac.uk/newsevents/pubs/re-distributed-manufacturing-workshop-report/>.
- Ernst & Young LLP (EY) (2013). *Value Creation: Background Paper for IP*. International Integrated Reporting Council. Retrieved November 15, 2016 from <http://integratedreporting.org/wp-content/uploads/2013/07/IR-Background-Paper-Value.pdf>.

- Huang, Q. & Lu, Y. (2015). The Effect of Urban Heat Island on Climate Warming in the Yangtze River Delta Urban Agglomeration in China, *International Journal of Environmental Research and Public Health*, 12, pp.8773-8789. Retrieved July 20, 2016 from <http://www.mdpi.com/journal/ijerph>.
- Hughes, J. (2013). *What Value Creation Will Look Like in The Future*, [online] Harvard Business Review. Available at: <https://hbr.org/2013/05/what-value-creation-will-look-like-in-the-future>, accessed 16 November 2016.
- ICH Anhui. [Intangible Cultural Heritage in Anhui]. (2016). *Index*. Retrieved in Chinese language July 16, 2016 from <http://www.anhuify.net/>.
- ICH China. [Intangible Cultural Heritage in China]. (2011). Retrieved July 19, 2016 from <http://www.ihchina.cn/>.
- ICH China. [The Intangible Cultural Heritage in China]. (2014). *National Intangible Cultural Heritage List*. Beijing, China. Retrieved July 23, 2016 from <http://www.ihchina.cn/show/feiyiweb/html/com.tjopen.define.pojo.feiyiwangzhan.GuoJiaMingLu.guojiamingluMore.html>.
- ICH Jiangsu. [Intangible Cultural Heritage in Jiangsu]. (2016). *Lists*. Retrieved July 16, 2016 from <http://www.jsfybh.com/>.
- ICH Shanghai. [Intangible Cultural Heritage in Shanghai]. (2016). *Lists and index*. Retrieved July 17, 2016 from <http://www.ichshanghai.cn/>.
- ICH Zhejiang. [Intangible Cultural Heritage in Zhejiang]. (2016). *Lists*. Retrieved July 16, 2016 from <http://www.zjfeiyi.cn>.
- Irwin T. (2015). Transition Design: A Proposal for a New Area of Design Practice, Study, and Research, *Design and Culture*, 7(2), 229-246. Retrieved January 1, 2016 from <http://dx.doi.org/10.1080/17547075.2015.1051829>.
- Jung, J.; Stuart, W., Evans, M., Cassidy, T. & Twigger, A. (2015). Design roots and Creative Ecology, in *Making Futuring Conference Proceeding*, Plymouth University 24-25 September, Plymouth, UK, Plymouth College of Art. Retrieved October 19, 2016 from <http://makingfutures.plymouthart.ac.uk/>.
- Kohtala, C. & Hyysalo, S. (2015). Anticipated environmental sustainability of personal fabrication. *Journal of Cleaner Production* 99, 333–344.
- Kossof, G. (2015). Holism and the reconstitution of everyday life: a framework for transition to a sustainable society, *Design Philosophy Papers*, 13 (1), 25-38.
- Kossoff, G. (2011). Holism and the Reconstitution of Everyday Life: A Framework for Transition to a Sustainable Society, Ph.D. thesis, University of Dundee.
- KPMG. [KMG and Peat Marwick Company]. (2016). *Innovation through craft: opportunities for growth: A report for the Crafts Council*. Retrieved November 15, 2016 from [http://www.craftscouncil.org.uk/content/files/KPMG\\_CC\\_innovation\\_report\\_full.pdf](http://www.craftscouncil.org.uk/content/files/KPMG_CC_innovation_report_full.pdf).
- Lan, F. (2009). From Technique to Artistry: the current status and strategy of Longquan celadon industry, *Market Modernization*, 8 (1), 79-80.
- Liu, Y. & Zou, S. (2014). 反思景德镇非艺术陶瓷产品困境 [ Reflection on Non-Artistic Porcelain in Jingdezhen]. *Manager Journal*, 2, 386.
- Lockton, D. (2013). *Design for repair: empowering consumers to fix the future*. [online] Guardian, London. Retrieved July 19, 2016 from <https://www.theguardian.com/sustainable-business/design-repair-empowering-consumers-fix-future>.
- Lou, Y. (2016). Speech in *The Premiere of Documentary Longquan Celadon and Protection of ICH Forum*. Shanghai: Finance and Info Centre of Lujiazui. Retrieved November 19, 2016 from <http://ljzfin.com/news/info/35269.html>.



- Lu, X. (2012). 景德镇陶瓷产业集群发展研究[Study on the Development of Ceramic Industrial Cluster in Jingdezhen]. (MA Dissertation). In: Jingdezhen Ceramic Institute. Retrieved February 16, 2016 from [http://epub.cnki.net/kns/brief/default\\_result.aspx](http://epub.cnki.net/kns/brief/default_result.aspx).
- Lucie-Smith, E. (1981). *The Story of Craft: The Craftsman's Role in Society*. Oxford: Phaidon.
- Mead, D. (2015). *Designing for Repair*. [Kindle] DesignFile, New York.
- Mengoni, L. E. (2011). Jingdezhen: an Enduring Legacy in Porcelain Production, in *The Porcelan City Jingdezhen Exhibition Catalogue*. London: V&A Museum.
- Metcalfe, B. (1997), "Craft and Art, Culture and Biology," in P. Dormer (ed.), *The Culture of Craft*, 67–82. Manchester: University of Manchester Press.
- PGJP. [People's Government of Jiangxi Province]. (2016). 江西省人民政府办公厅关于印发江西省2016年推动长江经济带发展工作要点的通知 [Important Reports on Promoting 2016 Economic Development of Jiangxi province within the Yangtze River Economic Zone]. Retrieved June 1, 2016 from [http://www.jiangxi.gov.cn/zzc/ajg/sbgt/201608/t20160830\\_1285683.htm](http://www.jiangxi.gov.cn/zzc/ajg/sbgt/201608/t20160830_1285683.htm).
- Prendeville, S. (2016). *Makespaces: From Redistributed Manufacturing to a Circular Economy*. Retrieved October 25, 2016 from [https://www.researchgate.net/publication/299749017\\_Makespaces\\_From\\_Redistributed\\_Manufacturing\\_to\\_a\\_Circular\\_Economy](https://www.researchgate.net/publication/299749017_Makespaces_From_Redistributed_Manufacturing_to_a_Circular_Economy).
- Qi, L. (2004). *Porcelain Capital in Need of Renovation* [online] Beijing: China Daily. Retrieved November 1, 2016 from [http://www.chinadaily.com.cn/english/doc/2004-12/15/content\\_400216.htm](http://www.chinadaily.com.cn/english/doc/2004-12/15/content_400216.htm).
- Risatti, H. (2007). *A Theory of Craft: function and aesthetic expression*. The University of North Carolina Press.
- Schwab, K. (2016). *The Fourth Industrial Revolution*, [online] WEF. Retrieved November 12, 2016 from <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>.
- Sennett, R. (2008). *The Craftsman*, Yale University Press, CT: New Haven,.
- Shi, W., Li, L. & Hu, P. (2004). 从艺术分类学的角度谈云南民族民间工艺的分类 [The Classification of Folk Crafts in Yunnan Province from The Perspective of Art Taxonomy]. *昆明理工学院学报 [Journal of Kunming institute of Science and Technology]*, 4(1), 99-103.
- Shiner, L. (2012). "Blurred Boundaries"? Rethinking the Concept of Craft and its Relation to Art and Design. *Philosophy Compass*, 7 (4), 230–244.
- Tang, C. (2013). 基于钻石理论AHP法的景德镇陶瓷产业集群优化研究[*Optimization Strategy Research of Jingdezhen Ceramic Industrial Cluster Based on "Diamond Model AHP"*]. [MA Dissertation]. In: Hainan University.
- Tang, J. (2003). *中国民艺博物馆 [Chinese Folk Art Museum]*. China: Guangxi Fine Art Publishing House.
- Tang, J. (2006). *The Cultural Ecology of Folk Art*. Beijing: Tsinghua University Press.
- Tian, G., Jiang, J., Yang, Z. & Zhang, Y. (2011). The urban growth, size distribution and spatio-temporal dynamic pattern of the Yangtze River Delta megalopolitan region, China. *Ecol. Model.* 222, 865–878.
- UNESCO (2008). *Intangible Cultural Heritage List*. Retrieved July 1, 2016 from <http://www.unesco.org/culture/ich/>.
- Uphoff, N. (1996). "Preface" in Blunt, P., Warren, D.M. ed., *Indigenous Organizations and Development*. London: Intermediate Technology Publication.
- Walker, (2011). *The Spirit of Design*. London: Earthscan.
- Walker, B. & Salt, D. (2006) *Resilience Thinking — Sustaining ecosystems and people in a changing world*. Washington: Island Press.

- Walker, S. (2014). *Designing Sustainability*. London: Routledge.
- Walker, S. (2016) *Design Ecology, Sustainability and Understanding China's Crafts*. [email] Sent to the author, 19 July.
- Wang, C. (2010). 龙泉青瓷发展现状研究 [A Study on the Current Developing Status of Longquan Celadon]. (MA Dissertation) in: Chinese Academy of Fine Art, China: Hangzhou.
- WEF. [World Economic Forum]. (2015). *Emerging Tech 2015: Distributed manufacturing*. Retrieved October 26, 2016 from <https://agenda.weforum.org/2015/03/emerging-tech-2015distributed-manufacturing/>.
- Xu, J. & Yu, H. (2014). 景德镇陶瓷发展现状研究 [The Current State of Porcelain Development in Jingdezhen]. *佛山陶瓷 [Foshan Ceramics]*, 24(5), 58-62.
- Yuan, L. (2008). 基于本土文化理念的龙泉青瓷产业发展模式研究 [A Study on The Development Model of Longquan Celadon Industry Based on Local Culture], (MA Dissertation) in: Hunan University.
- Zhang, D. (1999). *张道一文集 [Collected Works of Daoyi Zhang]* Hehui: Anhui Education Press. Available in Chinese language.
- Zhao, L. & Li, G. (2013). On the Productive Protection of Intangible Cultural Heritage in Handicrafts and Its Human Values—A Case Study of the “Wuhan Model”. *Human Rights*, 5. Beijing China. Retrieved November 9, 2016 from <http://www.cnki.com.cn/Article/CJFDTotal-RCYW201305003.htm>.
- Zhou, Z. (2011). 龙泉三问—龙泉青瓷产业的思考 [Three Questions of Longquan: reflection on celadon industry]. *装饰 [Chinese Journal of Design]*, 4, Retrieved August 15, 2016 from [http://www.izhsh.com.cn/doc/173/3\\_1096.html](http://www.izhsh.com.cn/doc/173/3_1096.html).

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