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# “Organized UX Professionalism” – An Empirical Study and Conceptual Tool for Scrutinizing UX Work of the Future

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**Abstract.** This paper proposes the notion of ‘Organized User Experience (UX) Professionalism’ to describe the nature of the UX work in organizations and support the development of the UX profession. The conceptual model of Organized UX Professionalism is observed in practice and evaluated using data from a survey of 422 UX professionals in five countries. The model recognizes that the UX profession and work are guided not only by the principles of user experience and usability, but also by organization and management issues. The empirical evidence shows that indeed Organized UX Professionalism consists of a management-minded work orientation, innovative tool use, highly social best practices, organizational user centeredness, community participation, and the maturity of the UX and usability concepts in the local society. The study also shows that UX professionals largely adopt system-oriented definitions of usability and UX, rather than changing their conceptions towards organizational and human-oriented definitions. We discuss implications of the findings and possible actions of returning to ‘certified usability professionalism’ versus ‘going beyond the idea of the UX professionalism’ towards organization specific UX only. From the human-work interaction design perspective, we believe that the notion of Organized UX Professionalism helps conceptualize, measure, develop, and manage the work of UX professionals in different social contexts as well as understand the outcomes and role of this work in the organization. Further, we propose a few concrete research directions to continue this research.

**Keywords:** Organized UX Professionalism, User experience practice, Usability practice, HCI community, UX tools, HCI theory.

## 1 Introduction

The notion of user experience (UX) has been central in the information systems (IS) and human-computer interaction (HCI) research communities for studying usability and the hedonic qualities of user interaction with computers [121,122]. The notion of UX has spawned an entire profession of people who research, design, and evaluate the

UX of products and services. This paper focuses on characterizing the nature of work of the UX professionals who generally can find support in their professional development from the User Experience Professional Association (UXPA) International (<https://uxpa.org>). UX professionals provide professional services within the information technology (IT) field in the same way as doctors, nurses, lawyers, accountants, and teachers provide services in the fields of health care, law, accounting, and education, respectively. They are a significant professional group contributing to positive work experiences at workplaces as their work aims at ensuring pleasurable user experiences for digital tools employees use at work. Recently, intelligent technologies have transformed work in significant ways; for instance, Artificial Intelligence (AI), robotics and IoT (Internet of Things) based tools have entered the workplaces with significant implications on both work and work well-being (e.g., [14]). UX professionals are ever more needed for ensuring positive work experiences for people, which has already been acknowledged by the HCI research community (e.g., [43,123]).

In this paper, we conceptualize the nature of the UX profession and provide evidence towards understanding the integration of UX professionals and their work into organizations. We propose the notion of ‘Organized UX Professionalism’ to describe the nature of UX work and the further development of the UX work in terms of the integration of UX work into organization. Studies concerning the UX professional practice have shown that this is an emerging profession displaying the features of traditional professionalism [5,32,35,54,76], while with unique and different attitudes, knowledge, experience, and perspectives compared to other IT professionals [35,91]. Academic controversies about what UX profession is and how it can be fit into the development processes of an organization have a long history in HCI and IS research (e.g., [6,29,83,116]). This paper draws on the literature in both IS and HCI fields and organizational science to achieve a rich understanding of the phenomenon of UX professionals and associated professionalism within organizations.

Professionalism itself, however, has become controversial in recent years due to the complexity of problems facing organizations in the age of globalism and digitalization with the new requirements of delivering services everywhere and constant development of digital means [86]. The UX profession in specific and the IT profession in general are no exceptions [71]. Compared to non-IT professions, the IT profession may even be at higher risk of obsolescence due to the fast developments in IT-specific knowledge and skills required by organizations [71].

From an organizational point of view, it is not clear that it is important to employ UX professionals with a traditional, strong sense of professionalism. An organization’s strategy for development and innovation may mediate UX work practices, and even the competence [44] and qualifications [32] of individual UX professionals. A good example is the current trend of ‘Agile UX’, where UX professionals are often not allowed to have face-to-face contact with customers and end-users for user testing (the hallmark of the UX profession), and instead are encouraged to work as expert advisers and consultants [26]. More broadly, the next step in organizational development strategies may be to apply advanced participatory design practices that appeal to paying customers, by delivering techniques to IT professionals to safeguard user interests through achieving consensus with users about design decisions [74].

Examining professionalism in the IT workforce and how it impacts UX professionals’ integration into organizations further reveals the importance of

professionalism. A high degree of IT professionalism contributes to traditional workforce parameters in organizations, such as turnover/retention, job performance, job satisfaction, and motivation [40]. Hence, UX Professionalism is something that an employer should strive to identify, retain, and cultivate, as the right combinations of required skills, knowledge, and mindset may not be visible in the entry level professional, emerging only with years of work experience [31].

A balanced view of the relationship between professionalism and an organization can be achieved by recognizing and developing additional competences to ensure integration of the emerging UX profession - as a profession in its own right - into organizations. A UX professional needs both technical and business competence with the latter referring to both organization-specific and general interpersonal and management skills [12]. Furthermore, the integration of UX professionals into organizations may also be approached as a matter of team performance within major organizational endeavors [6]; for example, encouraging UX professionals to become good team members of an agile development team.

On a societal level, factors influencing UX professionals' integration into organizations may also need clarification. Professionals' identification with their national professional community may have ambiguous effects on their integration into the organization in which they are employed; for example, if someone develops a strong professional identity rather than a strong bond with their organization, they may be relatively more prone to search for another job outside this organization [40]. Furthermore, the relationship between academic researchers and educators on one hand and practicing professionals on the other may be diminutive when measured by several face-to-face meetings at professional events and in terms of the membership of the same professional communities [46]. Finally, national differences in the cultural background of UX professionals can moderate the factors shaping UX professionals' integration into organizations [60].

As in the case of professionalism in general [86], the current knowledge about UX Professionalism is characterized by controversy, with some researchers arguing for a 'return to the professional' original values and knowledge, while others calling for a move toward 'beyond professionalism' to prioritize the goals, methods, and procedures of organizations that employ professionals [86]. Both stances are unsatisfactory, and a better solution may be to further develop the idea of both technical and business competences [12]. We argue that relevant stakeholders should aim to establish new forms of 'organized professionalism' with "professional practices that embody organizational logics" [86]. In concrete terms, this means that organizational roles and processes are adopted by professionals in order to provide organizational capacities and resources to perform work-related tasks and comply with requirements. This notion of organized professionalism can be transferred into the HCI domain through a discussion of issues related to team managing roles and lead design roles, and how to adopt theories, methods, techniques and tools to help UX professionals be effective and efficient when performing organizational and work-related tasks, as well as engaging in communication with different stakeholders, including users, colleagues, and upper management. Furthermore, higher-level societal issues such as professional associations and government policies should be considered as they potentially affect the matter. The impact of clarifying the notion of 'Organized UX Professionalism' may potentially be substantial for not only professionals and organizations but also

governments. Thus, in this study, our aim was to help clarify what should and should not be done to improve UX professional services. For this purpose, we asked the question, “What is Organized UX Professionalism?”.

The paper is structured as follows. Section 1.1 elaborates further the motivation of the study and its relevance to the human-work interaction design (HWID) research area. Section 2 presents related work concerned with studying the UX profession and its integration in organizations. Section 3 defines the concept of ‘Organized UX professionalism’ and the research model. Section 4 and 5 describe the research method and the empirical evidence for studying and illustrating the model in practice. Section 6 and 7 discuss the findings, implications and propose research directions.

### 1.1 The relevance of Organized UX Professionalism to Human Work Interaction Design

This paper addresses what kind of UX professionalism is needed to carry out Human Work Interaction Design (HWID)<sup>1</sup> [11,36]. HWID is a socio-technical HCI approach that aims to link empirical studies of human work and organizations with IT interaction designs in local contexts. The HWID social analysis may cover organizational and work analysis of workers’ experience of and actions towards task, procedures, workspace/place, and work domains, including society level analysis. The HWID technical analysis concerns interaction designs activities (persona, scenario, sketching, prototyping, think aloud usability evaluation, etc.) can be in focus. The relations between the social and the technical, e.g., ‘facilitating between users and designers’, are created in HWID by designing ‘relation artefacts’ that are local interventions into work and IT. An important type of these relation artefacts are the alignments of the technical designs with organizational strategies [34]. In particular, the integration of usability work ‘culture’ into the culture of the organization [63] calls for Organized UX Professionals.

We point out that for HWID in practice, UX professionals are to be considered central actors: they possess valuable type of expertise for HWID. UX professionals doing HWID should be able and willing to engage in work and organizational analysis. Moreover, we underline that evaluations and interventions with prototypes in organizational settings require UX professionals to engage with management in organizational strategy alignments. The new HWID prototypes should fit with the organization’s long-term strategy if those are to be used. Thus, a factor for successful organizations is the close linkage of IT and business strategy [7]. This is also true for HWID and business strategy. Following the idea of strategy as practice [68], that is, how management practices are used to put strategy into practice, practices of interaction design for human work may at some point be morphed into organizational strategies by aligning the organizational UX culture with the business and organizational goals.

What activities do UX professionals engage in to ensure they are in the room when important business decisions about product direction and business strategy are made have been raised by UX leaders from industry and by researchers [45,75]. This is a significant consideration for HWID, too. The answer appears to be that UX leaders are concerned with not only aligning UX strategy with the organizational strategy but

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<sup>1</sup> <http://ifip-tc13.org/working-groups/working-group-13-6/>

also with broader questions of developing and managing a UX culture in the organization. They see UX strategy at the corporate level as being about the UX team being aligned with the overall goals and objectives of the business. They aim to shape the strategic plans, operational needs, and interdependencies between their own organization and the rest of the company, to and to increase UX team's effectiveness and synergies with other business functions. They see UX strategy at the level of a business unit as being about plans for delivering products, systems, or services that offers a high value to customers, and differentiates the company's brand. However, this requires multiple parts of the organizations to be involved [75]. Thus, UX strategy alignment has to be done within a UX organizational culture that can support the strategy and make it realistic and ensure it has an impact on company outcomes [45].

Thus, organizing and managing are increasingly considered as issues for UX professionals to deal with, and the culture of UX is changing towards this. Studying 'Organized UX Professionalism' may help reveal the unique UX culture dimensions important to all aspects of HWID. Both from academic research and industrial practice perspectives, aligning interaction design practices with organizational and work strategies is an important type of intervention.

## 2 Related work

Practices and organization related to the UX profession have been explored by HCI researchers from their particular disciplinary perspectives in multiple studies. This section discusses these studies through the insights provided by general research on professionalism.

### 2.1 Organizations and UX

Organization and management aspects have been addressed in relation to UX professionals for a long time. The interest in this area has further increased in recent years. HCI researchers reconsider key notions of HCI, such as usability and user experience in terms of their use in organizational departments and by management [75]. The management of local and global UX teams is higher on the agenda at key HCI conferences and publications than ever before [67,73,97,106,113]. New organizational topics, such as procurement and usability, have emerged [77], and new perspectives; for example, entrepreneurial UX mindsets have been proposed [110]. Within the HCI education research, attention has been directed toward questions such as whether the objectives and achievements of the HCI curriculum prepare students to address the new gaps in the job market and how to meet the increasing demand for a diversity of UX professionals [4,49,109].

Despite much research on UX professional services, it is still not clear what UX Professionalism is. According to research on professionalism in general, the issues of the type of work, organizational context, and external changes reinforce unfruitful conceptual and practical dualisms in professions [86]. Traditional distinctions, such as 'occupations versus organizations' and 'managers versus professionals' keep coming back to the discussion in attempts to understand the phenomenon [86]. Such dualisms are also observed in HCI research on UX professionals. In the next two sub-sections,

we will further address the distinctions between ‘occupations versus organizations’ and ‘managers versus professionals’ within the HCI field.

## 2.2 UX occupation and UX organizations

HCI research on UX occupation has contributed to deepening our knowledge about how UX professional work can be institutionalized in a country and the education and development of UX professionals. A ‘living’ HCI curriculum takes into account local conditions across the world [1,109]. The importance warranted to HCI in the curriculum perhaps reflects the priority given by practice; for example, Sari and Wadhwa [102] reported that the development of the UX profession was not seen as a priority in developing countries. Similarly, Ogunyemi, Lamas, Adagunodo, and da Rosa [88], referring to the situation in Nigeria, stated that the country had evolved quickly into the information age, but the level of HCI practices was not yet known. The authors conducted a survey and found that the industry knowledge about the existence of the UX profession was limited, with none of the companies in the study employing a UX professional and that the Nigerian market environment seemed to be driving Nigerian software companies toward adopting HCI practices [88].

For decades, HCI research has proposed frameworks and theories for institutionalizing UX professional work practices in various parts of the world [27,53,58,108]. For example, frameworks have been proposed to adapt UX practices developed in the US or EU to the local culture in India or China, embed these practices in local national organizations, and roll-out the new localized UX practices locally [108]. Today, the UX occupation (though not necessarily the profession) may be more widely institutionalized than ever before; a recent global survey with 758 practitioners and researchers found that the respondents believed that UX was not a new concept and that it covered existing engineering approaches based on user-centered design and usability [76]. For instance, frameworks widely adopted by HCI research and practitioners such as System Usability Scale (SUS) [9,22] have been widely used and found to be reliable and technology independent for almost any engineering / IT solutions.

HCI research on UX organization; that is, an organization that has clear and explicit policies about UX in its development, has taught us about organizational structures and dynamics of an UX organization and how UX professional services are coordinated and standardized. Organizations have for long had a wish for standardized UX concepts and services [85], which appear to be easy and simple to procure. The notion of a “certified usability professional”; i.e., a UX practitioner who has gone through a specific process to prove her/his knowledge of usability, keeps popping as a hot topic [85,120]. In this regard, it is unfortunate that although there is widespread consensus about the ISO definitions of usability [92], there is less so about the newer concept of UX [76,92]. Furthermore, historically, the standard notion of usability as an individual’s effectiveness and efficiency has been challenged by attempts to define usability as organizational usability [72], and more recently, a diversity of concepts of usability have appeared [37,59,75] despite its international standardization [65].

With regard to organizational structures and dynamics of a UX organization, a tutorial that ran for years at HCI conferences taught the effective implementation of ‘Corporate User Experience Teams’ in the areas of conflict between top management,



marketing, sales, IT, customer service, and product development, considering these teams as “the users’ lawyers” in technology design [58]. However, at the time, most organizations were still far from setting up UX teams in everyday organizational life [58].

### 2.3 UX professionals and UX managers

There is plenty of HCI research on UX professionals and UX managers. HCI research on UX professionals revealed the nuances between various kinds of UX professionals that were emerging and how UX professionals differed from other IT professionals. It is a repeated finding from surveys that there are sub-groups of UX professionals, ranging on a continuum from the UX researcher, who aims to understand users, to UX designer, who aims to improve their experience [4,30]. This gap in the views and practices of UX professionals and software developers appear to be a constant interest of research [20,69]. In some developing countries, UX professional job titles are hardly used at all, with professionals in this job area referring to themselves as ‘software engineers’, ‘graphic designers’, or ‘executives of multimedia and infrastructure’ [62]. Lárúsdóttir, Cajander and Gulliksen [78] found differences between various roles of IT professionals (scrum managers, team members, usability specialists, and business specialists) when conducting user-centered evaluations and noted that business specialists tended to depend more on asking users for their opinions compared to other professionals.

HCI research on UX management has also provided insights into the rise of the category of UX managers, how they work, and what their educational backgrounds and competences may be. Issues that have emerged are related to questions such as “Where does UX stand in the organization?”, “How do you define and explain UX to the team in a new product development?”, “How do customers understand and react to their invoice including a fee for UX?”, “In which stages or phases in the product life cycles/development are UX people involved?”, “What is the perfect UX development team in terms of skills and size?”, and “How to manage the perfect UX team?” These and other related issues have been repeatedly investigated in the HCI field [67,113] both in case studies of specific UX management practices in large UX tech companies [113] and in panel debates about ‘managing global UX teams’ [67]. A recent survey by Lallemand et al. [76] did not address the job title or job content, but reported the role and business domain of 758 self-selected UX professional respondents as falling into five subgroups: researcher 17%, consultant 26%, manager 11%, practitioner 37%, and student 10%. Hence, among UX professionals, a considerable subgroup works in management positions. Furthermore, the word ‘senior’ in the job title may explicitly be used to specify the authority position in organizational hierarchy related to the design or development processes [62]. Hussein, Mahmud, Tap, and Jack [61] found indications that having senior developers with little UX knowledge inhibited the impact of UX professionals, that is, they identified a need for more UX professionals to take up positions as managers. Austin [4] examined the cognitive profiles of UX professionals from small- to medium-sized enterprises and found that they tended to be somewhat more intuitive than analytical in their thinking style compared to management professionals, which Austin linked to the nature of the UX professionals’ work (design) tasks.

#### 2.4 Integration of UX Professionals and their work in organizations

The distinction between business/organizational UX and professional/specialist UX is becoming blurred and unclear in practice as UX professionals take up organizing and management roles. However, HCI research may implicitly maintain a fundamental opposition between UX professional work and organizational contexts through separate research communities: AIS HCI (Association for Information Systems) that focusses on HCI in business contexts and ACM HCI (Association for Computing Machinery) that focusses on general human-technology interaction [41]; while another important international HCI community with a perhaps broader profile is the IFIP HCI (International Federation for Information Processing). In business-oriented AIS HCI, 80% of the research focuses on HCI in the context of the work/organization and marketplace [81], compared to the surge of interest in non-work contexts in the so-called third wave [15,16] in computer- and design-oriented ACM HCI. Furthermore, in business-oriented AIS HCI, most of the studies address the use of IT artefacts (80% of studies), rather than the design and construction of new artefacts (20%) [81] which are the central research foci in ACM HCI.

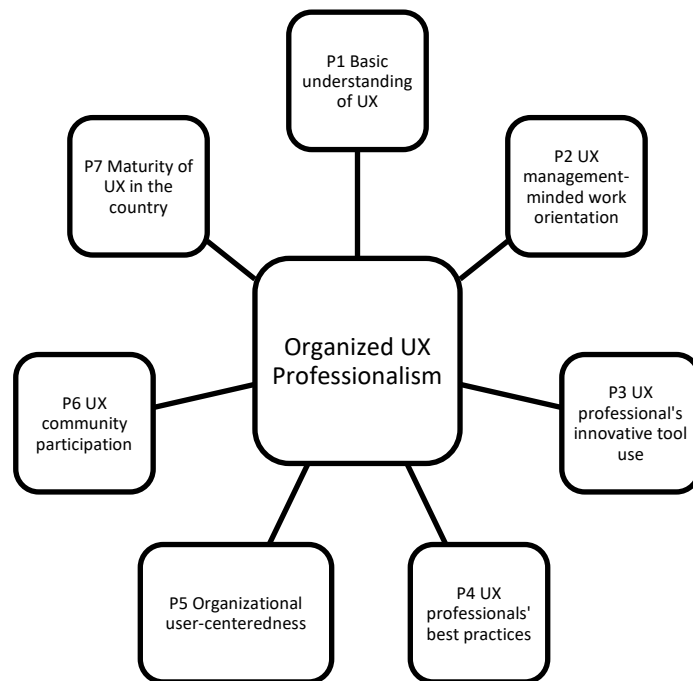
As for the integration of UX in organizations, it has been highlighted for some time that there is a need for ways to rethink the user-centric approach throughout the organization in order to embed it in business strategies [112]. UX professionals should have or develop an entrepreneurial mindset [110]. Familiarity with UX work and UX professionals in upper management should be supported and further investigated, which can be supported through cost-benefit analysis models to communicate usability work to upper management [93]. Besides the challenges of integrating the UX profession into traditional organizations, there are also issues specific to the emerging types of organizations and development processes and practices, such as open-source development, distributed and virtual global teams, and agile computing [6]. For example, Bach and Carroll [6] analyzed the socio-technical complexities of integrating UX activities into open-source projects and found that UX professionals applied different UX strategies of disseminating UX knowledge, rather than asking for UX feedback, to manage UX awareness in open source communities.

In brief, similarly to research in other professions [87], HCI research on the UX professional tend to enact several splits in perspectives: 1) between research in the classic UX professional specialist role versus the more recent UX professional managerial role, and 2) between the occupation of a UX professional versus the UX-oriented organization. These splits in perspectives may make it tempting to propose too simple solutions of either focusing on the UX specialist (return to professionalism) or focusing on the manager and other stakeholders with more or less sympathy for UX (going beyond professionalism). At the same time, various studies on the UX professional presented above seem to highlight the dynamics of UX professional services and reinterpret the meaning and boundaries of the UX occupation. The research indicates how the UX professional role is only emerging in some developing countries, such as Malaysia while being incorporated into design thinking in other contexts, how standards of usability and UX are continuously challenged, and how UX professional are gradually moving into management positions. As the UX professional becomes integrated into the organizational setting, it becomes harder to maintain an isolated research focus only on their specific skills and knowledge about usability

evaluation methods. Organization and management must increasingly be approached as issues to be addressed in relation to the UX profession.

### 3 Research model

In this section, we propose a descriptive research model to define Organized UX Professionalism. At the center of this model stands the integration of UX work into organizations. Such integration is shaped by the perception of UX professionals concerning their own expertise and work integration in the organization and system development process. Other stakeholders, such as managers, designers, developers, marketing, and customers may also have various perceptions and experiences about the degree to which UX is known within and integrated in the organization. Thus, we propose that the notion of Organized UX Professionalism is described by the extent to which the UX work and expertise are integrated in the organization. This integration can be observed and measured in various ways such as self-perception by UX professionals and perception by other professional roles. The conceptual model of Organized UX Professionals consists of seven factors shown in Fig.1, namely: basic understanding of UX, management-minded work orientation, innovative tool use, professionals' best practices, organizational user-centeredness, community participation, and maturity of UX in the country.



**Fig. 1.** Seven-factor model of Organized UX Professionalism (Propositions P1-P7).

The seven factors of Organized UX Professionalism are described in the propositions P1-P7 below.

*P1: UX professionals' management-minded understanding of usability and UX as well as their use of broad range of UX theories and methods is associated with Organized UX Professionalism.* We maintain that Organized UX Professionalism entails UX professionals becoming more management-minded. This includes them approaching usability as 'organizational usability', rather than adhering to the classic usability definition, as well as defining UX in a 'human-oriented' manner. We also consider the use of different theoretical approaches and UX methods indicating management minded innovation in UX, enabling tailoring the activities to specific needs of the situation at hand and reorganizing their work to become more effective. However, we also acknowledge there may be challenges in this respect: UX professionals may live by their privileged and basic understanding of classic usability and UX, which they may not want to change. The UX professionals may also be resistant to change, and they may not easily become management-minded [86].

*P2: Having UX professionals higher up in the organizational hierarchy due to their many years of experience in UX work is associated with Organized UX Professionalism.* We maintain that management mindedness of UX professionals may include them occupying actual management positions (i.e., with profit responsibility). Along these lines, a UX professional moving up in the organizational hierarchy may contribute through creation of familiarity with UX within the organization, especially so if UX or usability is maintained in the new job title. We also interpret the management-mindedness to relate to the number of years of work experience as a UX professional. On the other hand, we acknowledge that young professionals may have a different sense of professional 'calling' and less 'fixed' occupational identities compared to the past [86] and young UX professionals may respond to the call for becoming entrepreneurs [110] and start managing their own business, or if working within a large organization, they may see themselves in opposition to senior management.

*P3: Use of novel UX tools is associated with Organized UX Professionalism.* Professionals must organize their work efficiently to offer valuable services on time. Especially when such services are delivered by large organizations, professional work needs to be structured, while in fast digitalizing society adaptability and flexibility are also significant. Hence, UX professionals should continually seek new ways of creating and structuring their services. One important example of this is tool innovation, which includes adoption of new UX tools) for improved quality of user feedback [107], remote testing, and low and high-fidelity prototyping, as well as integration with Artificial Intelligence (AI), robotics and IoT (Internet of Things). The development of UX work should, thus, be driven by novelty and innovation.

*P4: Having highly social and multidisciplinary UX practices is associated with Organized UX Professionalism.* UX professionals' work practice development entails also other issues than tool innovation. According to the theory of organized professionalism [86] in other professions, having highly social best practices indicates a change in professionalism toward organizational and management contexts. Recent developments in UX point to the direction of end-users/clients increasingly performing activities previously performed by a specialist, such as a UX professional. For example,

it is becoming very easy for a client to video-record users having problems when interacting with systems without the requirement of an equipped, dedicated usability laboratory. This technological development means that it becomes easier to have one-to-one relations between professionals and clients, and related development in new digital business models means that the use of multi-agency partnerships and other forms of collaboration increase. Clients are thus empowered, and UX professionals must cooperate with them to provide effective services. The new kind of Organized UX Professionalism involves follow-up work on usability evaluations, use of professional agencies to recruit users, industry level large number of test users rather than the classic ‘discount usability’s’ one to five test users, more iterations of usability tests, and face-to-face contact with real end-users, which leads to multi-disciplinary interactions with higher complexity. HCI educators already point to the increased complexities in networks and configurations involved in UX activities and seek innovative configurations between students, scholars, UX professionals, and other industry practitioners to collaborate on new learning models that can help teach new generations of UX professionals to adapt, learn, and embrace technological innovation [48,49]. Overall, our fourth proposition predicts a positive relationship between Organized UX Professionalism and increasingly social and multidisciplinary practices of UX professionals.

*P5: More user-centeredness across the organization is associated with Organized UX Professionalism.* Organizational user-centeredness partly refers to the changing collective composition of the professional workforce. Some IT professional fields, such as UX, have always been known for their human-centeredness while others, including software engineering and programming are technology-dominated but are currently receiving an influx of user-oriented students and employers [78]. With this change in the workforce come proposals to rethink user-centered methods. Thus, for example, some propose that agile system development methodologies are user-centered and will automatically develop usable systems [78]. These agile-oriented software developers can, therefore, contribute to an organization’s UX-oriented work force. An organization with software development certifications (e.g., in rapid and agile development methods), more years of experience in UX work, and a higher number of UX professionals working in teams shows signs of having Organized UX Professionalism in the sense of changing the collective composition of the professional workforce.

*P6: Active participation in local and global UX professional communities is associated with Organized UX Professionalism.* Local and global professional associations aim to organize their members and support their professional development. To achieve this, they coordinate, arrange, hold events, and disseminate information. UX professionals are not unfamiliar to such associations; in particular, UXPA (User Experience Professionals Association) and ACM SIGCHI (Special Interest Group on Computer–Human Interaction) each organize and support thousands of UX professionals around the world. More HCI communities are emerging throughout the world, with the most recent examples appearing in countries in Africa [89]. With Organized UX Professionalism come new organizational arrangements, such as multi-disciplinary and multi-agency teams and partnerships, inter-professional collaboration, multi-disciplinary practices, and integrated services. Participating in community events may, thus, be a sign of this new approach to UX professionalism.

*P7: The maturity and awareness of usability and UX in a country and by its government is associated with Organized UX Professionalism.* Organized UX Professionals that meet new service realities at clients, companies, and in society, need to collaborate not only with each other in their UX community but also with professionals and managers from other fields in order to generate acceptance and ensure high quality of their services. This requires the development of laws, regulations, and standards, which enable UX professionals to link their professional practices to a mature understanding of the UX field at a broader society level. The maturity and awareness of usability and user experience in societies worldwide are indicated by the state of global usability and UX. The awareness of usability as a design issue and a professional area of research and education was developed in North America and Europe since the 1980s and is now spread across the world. However, it was only after the 2000s that usability and UX emerged as a global concern [42], and there is still variation between countries; for example, at the time of writing this paper, usability awareness was limited in the local IT industry of Pakistan [3]. We consider country and government maturity and awareness as signs of Organized UX Professionalism.

## 4 Method

To empirically evaluate the proposed model, we conducted a survey among UX professionals using a questionnaire developed for this purpose. Each construct in the propositions was operationalized using various items derived from the literature (see section 2. Related work). The collected data was then used to describe the concept of Organized UX Professionalism using formative structured equation modeling.

### 4.1 Participants

To reach a large number of professionals, we conducted the study in countries representing geographic and cultural diversity and where researchers have shown interest in the study, namely Turkey, Malaysia, France, Finland, and Denmark. In these countries, we identified the UX communities and contacted them via social media, mailing lists and direct email to answer the survey questionnaire. Thus, the selection of participants was based on convenience and purposive sampling. The sample included UX professionals from countries characterized by extensive background in HCI (Finland and Denmark), extensive background in ergonomics (France), and relatively recently established UX communities (Turkey and Malaysia). The sample included practitioners who self-identified as usability/UX professionals and who were members of local UX/HCI associations or communities. Participants had to be knowledgeable about usability and UX to be able to answer the questions about their background. The demographic and professional profiles of the participants as well as their perspectives on usability and UX are detailed in two articles [64,92]. Below we describe briefly the local UX communities from which the participants were sampled.

In Turkey, the dominant UX community is the UXPA, which was launched in 2014 in İstanbul as a non-profit local chapter of the global UXPA to serve interaction designers, usability/UX professionals, HCI specialists, etc. The email list of UXPA Turkey has more than 500 recipients, representing professionals from a variety of areas.

In Malaysia, there is a recently established Human Computer Interaction Special Interest Group (SIGHCI) under the Human Factors and Ergonomics Society of Malaysia. SIGHCI works with other technical committees and institutions in the development of usable products and services. In addition, UX Malaysia is an active and the largest UX-related social media group in Malaysia, comprising UX practitioners in the country. Founded in 2012, the group currently has 3,300 members on Facebook. Another group is the Kuala Lumpur ACM SIGCHI chapter with 130 members.

In France, the Luxembourg User Experience Professionals' Association (FLUPA) was founded in 2008 as the France-Luxembourg branch of UXPA. In the email list, there are more than 500 recipients. Ergo IHM is another mailing list available in the French community, which reaches more than 800 HCI professionals and students.

In Finland, the ACM SIGCHI Finland was founded in 2001 as a scientific association that gathers researchers and practitioners in HCI, usability, and UX throughout the country. The email list consists of approximately 450 recipients. In addition to SIGCHI Finland, there are several practitioner-oriented communities operating in the country: IxDA Helsinki, IxDA Tampere, and KäyttävyysoSY, all having dedicated Facebook and LinkedIn groups with several hundreds of members.

In Denmark, the dominant UX community is UX Denmark (formerly SIGCHI.DK), which is associated with ACM SIGCHI and UXPA, but not a formal chapter of either. UX Denmark was launched in 1999 as a website for interaction designers, usability professionals, HCI specialists, and so forth. The website [uxdenmark.dk](http://uxdenmark.dk) has 1261 registered interested persons from the industry, government, and academia. Furthermore, the UX Denmark social media groups are LinkedIn UX Denmark with currently 551 members and Facebook UX Denmark page with 1221 followers.

A total of 422 UX professionals participated in the study, of whom 91 (21.6%) were from Turkey, 51 (12.1%) from Denmark, 68 (16.1%) from France, 88 (20.9%) from Finland, and 124 (29.4%) from Malaysia. Of the participants, 213 (50.5%) were male, 188 (44.5%) were female, and 21 (5%) chose not to state their gender. The mean age of the participants was 35.2 years (standard deviation [SD] = 8.3).

## 4.2 Questionnaire development, data collection and analysis

### **Thorough literature review with theoretical grounding for measures**

We constructed the questionnaire items based on the data from previous studies presented and reviewed in the Related work section and added some more questions that we deemed important. We chose indicators that were theoretically relevant based on their previous use in surveys on UX and usability professionals or other relevant research, and also novel indicators from related work that we believed were key to modeling the Organized UX Professionalism. During this process, we followed recommendations for developing items for formative modeling [57]. The questionnaire is described in detail by Inal et al. [64].

### **Content specification (built on rigorous previous studies and qualitative data)**

The research model and the questionnaire were developed using a protocol over a year of monthly Skype discussions among the researchers participating in this research. At each meeting, we discussed the literature on previous surveys of UX professionals,

refined the theoretical research model to incorporate the findings from the literature, and developed themes/propositions to explore.

#### **Experts' assessment (local experts from five countries)**

Our aim was to create a research model and then define a set of questions that would not only measure the constructs in the developed model to seek answers to the research questions but also provide meaningful results for each country and local UX community from which the participants were sampled. In our Skype discussions, we prioritized developing meaningful question items over their discriminatory value, since our research was exploratory and involved five very different countries, and there was a risk that calibrating questions could mean endless iterations of little value. Furthermore, we conducted pilot tests of the questionnaire, reviewed the results of the pilot tests in each community, and reached an agreement on the wording of questions. The final questionnaire included items that measured the theoretical constructs using binary, semantic differential and Likert scale items in English language (Table 1). The questions were then translated into the five local languages by the researchers from the respective countries. The questionnaires were back-translated to ensure the accuracy of the translations.

#### **Measures**

The questionnaire thus constructed included in total 62 questions of which 33 questions measured the constructs in the research model (Table 1), while the other questions were aimed at collecting background information and other quantitative and qualitative data (see [64]). The main construct Organized UX Professionalism was captured by 4 items namely, asking the respondents to rate the integration of UX in their organization, the management familiarity with UX, the integration of UX in the development cycle, and the self-reported level of expertise. The other items measured the 7 factors in the proposed model of Organized UX Professionalism (Figure 1 and Table 1). For each construct, we aimed to have a minimum of three questions.

#### **Data collection and analysis**

The questionnaire was administered using online survey tools over a period of eight weeks. It was distributed through local UX associations, communities, mailing lists, and personal networks of researchers. The participants were given the option to choose a questionnaire in English or their local language. Reminder emails were sent two and four weeks after the initial emails. In total, more than 1,000 people accessed the survey.



**Table 1.** Assessment of the formative measurement and structural model.

Construct	Items	Item scales	Item Previously Used By	VIF	Weights	P-value
Organized UX Professionalism	Management familiarity with UX	(1) Not Known, (2) Probably Not Known, (3) Not Sure If Known, (4) Probably Known, (5) Very Well Known	*Novel*, see [24,25,44]	2.09	.004	.477
	Development phase including UX	(1) None, (2) Late, (3) Early, (4) All	[19,25,28,30,39,50,61,69,118]	1.14	.168	.001
	UX integration	(1) Not At All Integrated, (2) Mostly Not Integrated, (3) Medium, (4) Mostly Integrated, (5) Fully Integrated	[23,28,30,39,54,70,101,124]	1.44	.148	.005
	UX professional's sense of expertise	(1) Novice, (2) Little expertise, (3) Moderate expertise, (4) Considerable expertise, (5) Expert	[55,61,62,70,84,90,96,117,118,124]	1.22	.87	.000
P1 Understanding of UX	Usability definition	Individual (Def1) vs. organizational (Def2) definition - (1) Def1 Most, (2) Def1 Somewhat, (3) Equally, (4) Def2 Somewhat, (5) Def2 Most	[39,82,96]	1.02	-.137	.013
	UX definition	Product (Def1) vs. human (Def2) definition - (1) Def1 Most, (2) Def1 Somewhat, (3) Equally, (4) Def2 Somewhat, (5) Def2 Most	[66,80]	1.03	.017	.394
	Theories, frameworks, and methods used	1,2,3...N	[32,33,69,84,98,117,124]	1.33	.294	.000
	Interaction design activities	1,2,3...N	[13,19,23,28,30,39,55,56,70,96,98]	1.33	.806	.000
P2 UX management minded work orientation UX	Current position in the organization	(1) Outside hierarchy (Not applicable, e.g., unemployed), (2) Other (e.g., student, intern), (3) Entry level, (4) Specialist (including academic specialists), (5) Lower/middle management, (6) Top management	[61,90]	1.03	.149	.025

Construct	Items	Item scales	Item Previously Used By	VIF	Weights	P-value
	Current job title	(1) Neither UX nor usability in the job title, (2) Either UX or usability in the job title	[13,17–19,23,28,30,32,33,39,50,52,55,56,62,66,69,70,80,82,84,90,94,96,98,117,118,124]	1.01	.729	.000
	UX work experience	1,2,3...N	[18,30,33,52,55,62,70,80,84,117,124]	1.03	.64	.000
P3 UX professionals' innovative tool use	Tools for quick user feedback	1,2,3...N	*Novel*, [17,51]	1.28	.199	.012
	Tools for remote usability testing	1,2,3...N	*Novel*, [51,124]	1.15	.139	.068
	Tools for low-fidelity prototyping	1,2,3...N	*Novel*, [26,32,51,55,115]	1.63	.701	.000
	Tools for high-fidelity prototyping	1,2,3...N	*Novel*, [26,32,51,55,115]	1.62	.225	.006
P4 UX professionals' social best practices	Face-to-face contact with end users	(1) No, (2) Yes	[19,23,28,39,52,96]	1.25	.174	.069
	Usability testing	(1) No, (2) Yes	[2,8,18,19,23,39,55,96,118]	1.35	.754	.000
	Number of usability tests conducted	(1) No Test, (2) Single round, (3) Two rounds, (4) Three or more rounds	*Novel*, [50,79]	1.12	.011	.455
	Number of users involved in usability tests	(1) Discount usability testing 1-5, (2) Research level usability testing 6-50, (3) Large, multinational industry level >50	[23]	1.02	-.186	.028
	User recruitment method	(1) Organization itself, (2) Through an agency	[2,23,39,70]	1.02	.086	.160
	Follow-up usability process	(1) No, (2) Yes	[18,30,56]	1.06	.339	.001

Construct	Items	Item scales	Item Previously Used By	VIF	Weights	P-value
P5 Organizational user centeredness	Number of UX professionals	(1) One, (2) Two to five, (3) More than five	*Novel*, [103]	1.07	-.098	.260
	Organization's years of experience in UX	(1) <5 years, (2) 5-10 years, (3) >10 years', Missing (Do Not Know)	[63]	1.03	.445	.000
	Number of UX professionals per team	(1) One, (2) Two to five, (3) Five to ten (4) More than ten	[13,18,56,70,94,118]	1.08	.004	.485
	System development method	(1) Waterfall, (2) Rapid, (3) Agile	[2,23,55,56,62,70,118]	1.00	.915	.000
	Software maturity	(1) No awareness, (2) Not certified, (3) Certified	* Novel*, [85,119]	1.02	-.032	.415
P6 UX community participation	National community membership	(1) No, (2) Yes	* Novel*, [33,42,94]	1.24	.558	.000
	International community membership	(1) No, (2) Yes	* Novel*, [33,42,94]	1.19	.283	.006
	National UX event attendance	1,2,3...N	* Novel*, [33,46,94]	1.27	.359	.001
	International UX event attendance	1,2,3...N	* Novel*, [33,46,94]	1.50	.451	.001
P7 Maturity of UX in country	Years since usability first used in country	1,2,3...N	* Novel*, [42,105]	1.43	.128	.232
	Years since UX first used in country	1,2,3...N	* Novel*, [38,47]	1.06	.733	.000
	Information about government regulations	(1) Yes, (2) No	* Novel*	1.12	.252	.024

At the end of the data collection process, the data from each country were merged and cleaned, and the responses to the open questions were translated to English to allow all researchers to take part in the analysis. The final data set consisted of the valid responses of 422 participants. The data was analyzed using structural equation modeling utilizing SmartPLS3 [95].

## 5 Results

### 5.1 Formative measurement model assessment

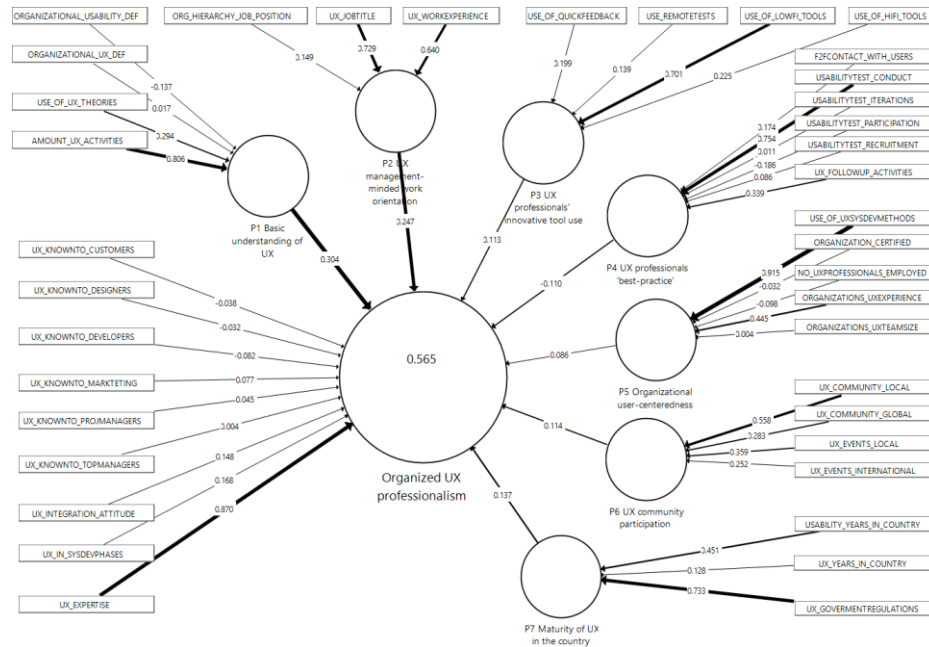
We assessed the formative measurement model by assessing the collinearity of the indicators, the effect of the indicators on the construct, and their basis in the literature (**Table 1** and [57]). The indicators were theoretically relevant and key to modeling the Organized UX Professionalism as indicated by the questionnaire development (see section 4). **Table 1** shows the constructs, items, and item-scales used in modeling, publications that previously used these items, and publications reporting findings that support our novel items; for example, those about innovative tool use, which has not been previously measured with a specific focus.

Regarding collinearity, **Table 1** shows that for all items, the variance inflation factor (VIF) was below 3, which indicates no problematically high correlation between two formative indicators and supports the idea that our indicators together captured their constructs [57].

**Table 1** also provides information on the significance and relevance of the formative indicators in terms of their weights on their constructs and the p-values. The overall results suggest that the items previously used in the literature had significant effects on their constructs. Of the novel items, some did not significantly correlate with their constructs or only did so when relaxed criteria were used while others correlated with their constructs significantly. We did, however, keep the novel items that we considered to be important indicators of their constructs even if they did not have significant effect on their constructs, if we had theoretical reason to believe that they would be key to modeling Organized UX Professionalism, again following the recommendations in Hair et al. [57].

### 5.2 The formative model of Organized UX Professionalism

The proposed seven-factor research model of Organized UX Professionalism is supported by the formative modeling of the responses from 422 UX professionals across five countries (**Fig. 2**). The model in **Fig. 2** should be seen as an initial proposal based on formative indicators. The model has enough indicators to capture the constructs, and the inclusion of these items are supported by the research literature.



**Fig. 2.** Holistic modeling with formative indicators of Organized UX Professionalism. The model shows the inner model path coefficients, outer model weights or path coefficients, construct R squared, and the relative contributions of the formative indicators and factors as the paths' widths [57].

### 5.3 Organized UX Professionalism

The proposed research model for Organized UX Professionalism hypothesizing that seven factors describe the integration of UX professionals into an organization is supported by the data obtained from the study (**Fig. 2**). The percentage of variation in the response that is explained by the model is considerable (R squared = 57%). We measured Organized UX Professionalism as a mixture of familiarity of UX across the organization's hierarchy and departments, UX expertise, overall UX integration, and the embeddedness of UX professionals in the system development processes of the organization. This was positively associated with a basic understanding of UX (path coefficient = .30,  $p < .001$ ) (supporting P1), management-minded work orientation (path coefficient = .25;  $p < .001$ ) (supporting P2), innovative tool use (path coefficient = .11;  $p = .01$ ) (supporting P3), organizational user-centeredness (path coefficient = .1;  $p = .02$ ) (supporting P5), UX community participation (path coefficient = .11,  $p = .001$ ) (supporting P6), and maturity of UX in the country (path coefficient = .14,  $p < .001$ ) (supporting P7). P4 was also supported as the UX professionals' best practices appeared to have an impact on Organized UX Professionalism (path coefficient = -.11,  $p = .01$ ), though the impact was negative.

The relative paths between the constructs in **Fig. 2** suggest that individual factors (P1, P2, P3) and the factors at the society level (P6, P7) were important factors for our

dataset. However, the lack of a strong effect of organizational-level factors (P4, P5) may reflect a relative low degree of maturity of the UX profession in parts of our data (see also section 5.3). Nevertheless, the path coefficients of all seven factors were significant at the .05 level, which, we consider, will support future attempts to further consolidate the proposed seven-factor model of Organized UX Professionalism.

#### 5.4 Management-minded UX professionals

Qualitative findings in our data supported the quantitative results given above. We asked the respondents to report and prioritize their main frustrations in being a UX professional using open-ended questions about UX professionals' frustration with both organizational issues and professional tools, skills and knowledge, and their needs for more organizational resources and better tools and knowledge. Four of five top frustrations were organization-related (insufficient resources: time, money, equipment; lack of understanding and knowledge about UX in the organization, team or project; low priority of UX issues in the organization; and communication problems with developers). Only in place number five came the need for better professional qualifications. A classic usability professional frustration (i.e., lack of knowledge about the user) was only mentioned in seventh place on the list. A similar pattern of responses emerged when we inquired about the means to improve UX work. Among the top five responses, three were directly organization-related (improved work environment, more support from upper management, and more internal collaboration), while the remaining were more associated with professional work (easier access to quantitative user data, education / training of usability / UX professionals).

#### 5.5 Cross country and UX community findings

To investigate the possible differences between the participants from each country, we did a multi-group analysis [57]. The relation between Basic understanding of UX and Organized UX Professionalism (P1) was significantly stronger in Denmark (path coefficient .28) compared to Finland (path coefficient -.04; path coefficient difference = .32,  $p=.03$ ) and to Malaysia (path coefficient -.19; difference = .46,  $p=.03$ ). The relation between the basic understanding of UX and Organized UX Professionalism was also significantly different ( $p = .01$ ) in France (path coefficient = .34) compared to Malaysia (path coefficient = -.19). Further analysis is needed to clearly identify the reasons for these differences, but some possible explanations are as follows: Having ownership of Nokia and related industries, Finland may have more business-oriented UX professionals compared to Denmark. For the Malaysian UX community, it may distinguish itself by being oriented toward certified engineering approaches, rather than business or design. However, such speculations require further research to be sustained.

In addition, we found that the relation between UX management-minded work orientation and Organized UX Professionalism (P2) had a significantly different direction ( $p = .01$ ) in Malaysia (path coefficient = -.23) compared to Finland (path coefficient = .33) and compared to France (path coefficient = .21;  $p=.03$ ). Furthermore, the relation between UX professionals' social best practices' and Organized UX Professionalism (P4) was significantly different ( $p = .02$ ) in Malaysia (path coefficient = .21) compared to Turkey (path coefficient = -.21). Finally, the relation between

Maturity of UX in the country and Organized UX Professionalism (P7) was strong in Finland (path coefficient = .30) and statistically significantly different compared to France (path coefficient = -.14;  $p = .01$ ), Malaysia (path coefficient = .08;  $p = .04$ ), and Turkey (path coefficient = .10;  $p = .05$ ). Note that these multi-group differences should be considered rather tentative since group sizes are small. Further research is required.

## 6 Discussion

### 6.1 Organized UX Professionalism

Overall, our findings suggest that a new kind of Organized UX Professionalism may be emerging and point to some of the issues that support or hinder this development. According to our results, the issues that have a positive impact on Organized UX Professionalism include an open and wide basic understanding of UX, management-minded work orientation, organizational user-centeredness, UX community participation, and maturity of UX in the country.

Surprisingly, our respondents tended to choose the individual focused ISO standard usability definition, resisting to shift their perspective toward a more organization-oriented definition of usability [65], [for a detailed discussion see 92]. Organization science researchers have suggested that it is important to analyze professional resistance to organizational control to understand professionalism [86]. Perhaps the ISO standard definition of usability is the core of UX professionals' identity [35]. In contrast to the consensus we found on usability, we found no consensus among our respondents about the newer concept of UX, a finding that is supported by other recent surveys [76]. The standard notion of usability as individual effectiveness and efficiency has been challenged, unsuccessfully, by organizational usability many years ago [72], whereas similarly organizational definitions of UX, for example, quantified UX [75], have only just recently appeared

According to the theory of organized professionalism [86] in other professions, having highly social best UX practices should indicate a change toward organizational and management contexts. However, we found that UX professionals' best practice actually had a negative impact on Organized UX Professionalism, which may be because the social practices we inquired about in this study belonged to the tradition of the certified usability profession (usability testing, face-to-face meetings with users, etc.), rather than the new social media-mediated and fluent collaboration recommended by organization science research [86].

Participation in local and global UX communities and their events did have a significant influence on Organized UX Professionalism. To some degree, however, it may be natural that a professional community does not support its members in becoming more management- and less profession-oriented. In addition, Sari and Wadhwa [102] pointed out that the development of the UX profession was not considered as a top priority in developing countries, such as Indonesia, which may also be the case in some of the countries included in our study. Furthermore, studies of older professionals suggest that when IT professionals get older, this has a negative impact on the number of activities that older professionals do to keep their skills updated [104]; we did not find this relation in our data. Further research into this issue may investigate the nature of UX events and UX communities.

A high level of general maturity of UX in our respondents' countries did have a positive impact on Organized UX Professionalism. While this may require further analysis, it can be speculated that some countries that only recently familiarized with UX could be faster in directly adopting a network-connected organized professionalism. In our study, Turkey and Malaysia were the newest in the UX field. Malaysia may also have a government-driven approach to UX that somewhat placed it in front of UX-mature countries, such as Finland.

Our qualitative results indicate that our respondents really had a great deal of interest in the so-called 'secondary' aspects of service treatment, namely efficiency, communication, cooperation, safety, and reputation management. This again supports the use of our proposed notion of Organized UX Professionalism as a means to further develop the UX profession.

## 6.2 Return to the (certified) usability professional?

Usability in classic terms proved to be very important for the respondents in our study. The qualitative data clearly revealed the respondents' demand for standardized concepts and services. The statements from the participants, such as "General understanding of how much value (efficiency and error minimization) good UX provides" [Participant ID 110, Denmark], indicated a strong belief in the value of UX tools and skills. The certified usability professional issue [120] is important, considering that 30% of our respondents referred to a 'lack of qualified usability / UX professionals in the organization, team or project' as a frustration related to being a UX professional. Perhaps the early HCI days' description of usability professionals 'being too late in the system development process and achieving too low-level solutions' days remains or the founders of HCI never imagined that UX professionals would become more than specialists [83]; in either case, our findings suggest that UX professionals today still have a strong focus on specialist knowledge and skills.

## 6.3 Beyond UX Professionalism?

Alternatively, we could abandon focusing on individual UX skills and knowledge, and instead turn toward organizational capabilities. Our data clearly supports that organizational issues influence UX Professionalism, and to an extent, rethinking a user-centric approach throughout the organization so that it becomes embedded in business strategies, as has already happened or is happening in many organizations [112]. Another frontier challenging the notion of UX professionals is the call for them to have an entrepreneurial mindset; that is, not only solving user problems in their contexts but also transforming them into business problems by considering solution dimensions, i.e., products versus services, target segments, competitive edge, competition, market size, scalability, etc. [111]. This mindset was only indirectly indicated in our data in terms of the respondents' innovative tool use and use of a broad set of HCI theories and methods. Finally, not all usability work takes place in organizations with a clear hierarchy, and the socio-technical complexities of integrating UX activities into flat organizations, such as open-source projects may call for rethinking UX work practices, such as the dissemination of UX knowledge to maintain UX awareness [6].



Another reason for turning more toward organizational capabilities (rather than certified professionalism) could be the impact of emotional labor and conflict handling at the core of UX professionals' work tasks. The frustration expressed by our participants about being a UX professional pointed to more or less open conflicts with management; e.g., "There is a lack of design thinking in leadership; the management sets the direction for the final solution, without the managers knowing that they are already in the process of designing the solution" [Participant ID 113, Denmark], "Management interferes with decision making" [Participant ID 248, Malaysia], and "It is difficult for users to meet more regularly. My [company's] hierarchy sees reaching out [to users] as 'political' and almost always slows my progress" [Participant ID 413, France]. Such comments from our participants testify to a level of job frustration and work exhaustion resulting from a negative organizational climate [99], which may lead to high turnover [71,100] among UX professionals. However, our participants also had many ideas about how to improve UX work practices within their organizations. For example, "There is a need for more money for user studies in customer organization" [Participant ID 156, Finland] and "I need to have time for UX activities in the product development life cycle and think about time, budget, force, etc." [Participant ID 65, Turkey]. While these comments may be of little surprise, such issues need to be well addressed to support the development and maintenance of UX Professionalism in organizations.

#### 6.4 Future research

Further research is required into the notion of Organized UX Professionalism in order to navigate between the 'return to the certified usability professionalism' to retain the specialist role and 'giving up UX Professionalism' to become a business entrepreneur'. Szóstek [113], who reported on UX management practices in Microsoft, revealed a number of issues, some of which we addressed in the current study, but there remain further questions to be discussed in future studies, in particular those related to the extended social side of Organized UX Professionalism: Is UX work included in the standard invoice issued for customers (and even when it is included in the invoice, are the amount and ratio sufficient)? If yes, how do customers react to their invoice including a fee for UX? What are the key challenges in managing UX methods in complex, dynamic and cross-border settings (language, culture, time, face-to-face, physical, social tensions, and deliverables)? Do managers and specialists view UX methods from different perspectives? What are bad practices in UX management? How does a UX manager establish clear accountability within and between UX teams? What is the perfect UX development team in terms of skill composition and size? Finally, how can a perfect UX team be created and managed?

Organized UX professionals may work in organizations that go across borders. The differences between countries and UX professional communities indicated by our data should be taken seriously. HCI education should train UX professionals not only in traditional usability and UX skills but also in organizational and cultural competence and knowledge [1]. Business schools with an IS department may be in a good position to provide this kind of training. UX professionals will have to learn how to (re)organize their professionalism and become more management-minded, social, and connective, familiarize with new digital work and organizational forms, and create new kind of

usability and UX standards that work in the many emerging HCI communities in many different geographical and cultural settings throughout the world.

Returning to age and gender, Barkhuus and Rode [10] pointed out that embarrassingly, only few HCI studies report the distribution of gender of their participants (respondents). In our study, we had nearly an equal number of female and male respondents. Thakkar et al. [114] found that the proportion of women working in HCI in India was far less compared to the U.S., where it was already low. Furthermore, they found that familial pressures and workplace discrimination, e.g., from management, often prevented women in the HCI field from reaching management positions. This is something that should be analyzed in detail in future research. Things start to happen when the gender composition of a workforce changes [86,87].

Finally, we would like to point out the recent developments in technology, including AI, robotics and IoT based solutions, and how they may be transforming the work of UX professionals, among other professionals, and impacting their work experiences and well-being (e.g., [14]). These tools may be used by the professionals as part of their UX work practices or UX professionals may be involved in designing such tools for other professionals. In either case, such intelligent technologies pose novel challenges for the HCI research community (e.g. [21,43,123]), which requires further studies.

## 7 Conclusion

In this paper, we proposed a seven-factor model of Organized UX Professionalism as a way of navigating the development of the UX profession between on one hand a return to certified UX specialism and on the other hand dissolving UX professional knowledge and skills toward organizational development approaches and management values. We hope that the model we propose guides further research in UX Professionalism in general and across AIS HCI, IFIP HCI, ACM CHI, UXPA, and other HCI communities. We consider the model and the concept highly valuable for HWID research and practice, enabling consideration of professional UX practices as well as their management and integration at different levels (organizational, national, professional). Our findings strongly support the idea that a new type of Organized UX professionals may be emerging, which differs not only from the classic certified usability professional but also from the software developer with skills in user-centered design. This new version of Organized UX Professionalism consists of organizational integration of UX expertise into all phases of system development, and it is positively influenced by management-minded work orientation, innovative tool use, highly social best practices, organizational user-centeredness, UX community participation, and the general maturity of UX and usability concepts in the local society.

## 8 Acknowledgments

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