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Participation in cultural heritage hackathons: 'carsharing' between 'meaningful nonsense' and 'unromantic' networking

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Abstract. This paper addresses the question why hackers participate in cultural heritage hackathons and argues for a participant-centered shift in qualitative research of digitally-enabled participation in the cultural sector. It is based on an ethnographic study of the Coding da Vinci West hackathon, including participant observation and semi-structured interviews. Three interrelated motivational factors of hackers were identified: the role in which they join, the hackathon characteristics they build on, and the connection with culture they strive for. Two groups of hackers formed around these factors: one hobby-oriented group interested in creative doing and one work-oriented group driven by professional networking. Their relations with cultural heritage institutions were either outcome-oriented or process-oriented. While the social aspect of hackathons was important for all hackers, the relevance of learning and doing were unequally distributed. However, the study also found that mostly cultural digital experts participated in the hackathon. Building on previous research, a stronger emphasis on mediating skillful practices and an invitation process based on 'areas of curiosity' instead of predefined skilled roles would potentially speak to a wider group of participants and thus support the goals of opening up collections through digitization more effectively.

Keywords: cultural heritage hackathon, Open GLAM, participation, motivation

1   Introduction

In the last ten years, galleries, libraries, archives, and museums (GLAMs) have embarked on a new journey to hack their digitized collections [1]. Inspired by tech events called hackathons – a neologism combining 'to hack' and 'marathon' – the GLAM sector seized the opportunity to bring their cultural heritage data to life. Hackathons originated in engineering and computing as time-limited events in which people come together to solve a challenge using hands-on collaboration [2]. For GLAMs, and particularly the Open GLAM movement, the hackathon trend around 2010 [3] offered a welcome public platform to draw attention to their

openly licensed collections and thereby demonstrate their creative potential for reuse. Hence, cultural heritage hackathons were promoted as innovative events for enthusiastic volunteer hackers to use digitized collections [4-6].

However, while the benefits and practicalities for GLAM institutions have been described by both hackathon organizers and researchers [7-8], the central stakeholders of a collaborative event, the participants, are missing in most publications. Thus, the people who join hackathons and participate in hacking cultural heritage, in this paper subsequently called hackers, have received only collateral attention and their voices have been neglected.

In the broader field of digital and participatory approaches in GLAMs, researchers have pointed to different gaps in understanding user and participants' perspectives, of which three aspects are most important for this paper: 1) users' general interests in openly licensed digitized cultural heritage collections are understudied [9-11]; 2) Web 2.0 promises and buzzwords around co-creation and crowdsourcing fueled unrealistic expectations about creative user communities that have not been validated empirically [12-13]; 3) the motivations of those who actually join GLAM crowdsourcing projects or hackathons have yet to be examined adequately [14-16]. Taken together, there is a desideratum in research and practice which is not only impacting the success of projects on the level of usability but rather challenging the basic values and credibility of participation in GLAMs. When the logic and benefit of the institution remains the dominating vantage point for organizing digital and participatory projects, the core values of participation – power sharing, opening up, and a caring relationship – are undermined [17].

Within this context, this paper contributes a new perspective by examining why hackers participate in cultural heritage hackathons, focusing on two interrelated topics: motivations to join and benefits of taking part. It is centered on qualitative research of the hackathon Coding da Vinci West (CDV West) which took place between October and December 2019 in Germany. Based on participant observation, semi-structured interviews and online surveys it explores the perspective of hackers in this event. This text will first give a brief introduction to the background of cultural heritage hackathons and literature on motivations of cultural heritage participants. Then it will outline the

methodology and context of the research project, followed by a presentation and discussion of the findings, and a conclusion.

2   Definitions and literature

2.1   *Cultural heritage hackathons*

Cultural heritage hackathons emerged around 2010 in Europe and North America and usually address the accessibility, usability and relevance of digitized cultural heritage collections within the Open GLAM framework [4, 6]. Taylor et al. [18] see the effective advantages of hackathons in three characteristics: bringing people together, emphasizing doing (instead of talking), and peer-learning. Building on these common traits the participatory modes of hackathons have been further described by practitioners and researchers as participatory design method [19], material participation in speculative design [20] and co-creation with collections [6].

The legal framework of Creative Commons (CC) licenses and the Open GLAM movement are deeply entangled with the spread of cultural heritage hackathons, as this format seemed advantageous for staging the potential of reusing collections [6]. To do so, and to convince other cultural institutions to share their collections with user-friendly licenses, hackathons were launched. Following an open call, people are invited to form teams, hack content and create prototypes. In their research of issue-oriented hackathons Lodato and DiSalvo call this process a "collective imagination of how future users could themselves participate" [20 p.554]. Based on the concept of speculative material participation they conclude that issue-oriented hackathons are less about the output but more about "contribut[ing] to our social imaginaries" [20 p.554]. This echoes the key drivers of Open GLAM hackathon organizers, who want to show the possibilities of reusing cultural heritage data. Their perspective highlights the creative and imaginative potential, but also the emergent and fragile operation mode of hackathons. Critiques see the unsustainable and unreliable nature of hackathon outputs as one of the format's main shortcomings [21].

Within this paper, cultural heritage hackathons are understood as collaborative events in which people come together to creatively explore and interpret the potential of digital collections within Open GLAM conditions. They work together throughout a predefined amount of time and the aim is to develop a tangible output to showcase their idea. This process of fast and focused ideation and prototyping follows ideas of design methodologies and agile project structures. The invitation to these events applies an open call principle – everyone who feels addressed as hacker or intrigued to create something with digital collections can join. Participation is voluntary but needs to follow the time schedule of the event. Cultural hackathons are a form of digitally-enabled participation, such as crowdsourcing projects. Both facilitate engagement with digital collections but while crowdsourcing projects often ask participants to do concrete tasks, the hackathon brief leaves the use of the collections open to the participants and employs co-creation methods.

2.2   Participants' motivations to join and engage in digital and participatory GLAM projects

At the present time, there is almost no research on the specific topic of hackers' motivations to join and participate in cultural heritage hackathons. One exception is Moura de Araújo's doctoral thesis which touches upon motivations of hackers [1], referring to Falk's museum visitor experience type coined 'professional/hobbyist' [22]. This group is characterized by the alignment of their passion or career with the institution's content and their engagement is described as focused and goal-oriented. In an online survey with 108 respondents Moura de Araújo further examined the profile of cultural hackers and found that they often show a professional maturity and sometimes work within the cultural heritage sector.

Looking at the wider context of community- and technology-oriented hackathons the topic of motivation and participation has gained more attention in recent years, leading to more quantitative research. Briscoe and Mulligan [23] refer to the results of a commercial survey which found that learning and networking were the main motivations for hackers in context of US tech-hackathons. And

Ferreira and Farias' quantitative exploratory study identified "recognition, learning, financial rewards and fun" as main motivators [24 p.2]. Conducting quantitative analysis, they also conclude that more research involving citizens would be needed "to identify what lies beyond motivation" [24 p.19]. Building on the above definition of hackathons and their close neighborhood with crowdsourcing as digitally-enabled forms of participation in GLAMs, this paper also draws on studies of participation in crowdsourcing. Here, Mia Ridge [25] differentiates between three types of crowdsourcing motivations: altruistic, intrinsic, and extrinsic. The distinction between intrinsic and extrinsic motivation is a classic dichotomy in psychology and the self-determination theory shaped by Richard Ryan and Edward Deci. They discriminate intrinsic motivation as focused on the "inherently interesting or enjoyable" process of doing something, and extrinsic motivation as oriented towards a "separable outcome" [26 p.55]. Internal or intrinsic motivations are often associated with positive emotions, such as enjoyment, fun, and curiosity, while external motivations are rather negatively connotated as control or punishment, but can also stand for money or other rewards. External motivators are often opposed in Open GLAM and Open Source contexts while ideas of passion and enthusiasm are foregrounded [27]. Usually, people are motivated by a combination of both, internal and external reasons and some scholars argue that the binary does not suit the complexity and entanglement of motivational factors, e.g., when it comes to internalized external reasons [14].

In the context of cultural projects researchers found that the relation between participants and cultural institution is a relevant component as well. In this vein, Russo and Peacock's study of tagging and Web 2.0 participation suggested that institutional affiliation was one of the main motivators, which interacts with both intrinsic and extrinsic aspects [14]. This special institutional attraction that museums seem to have on some participants is also identified by psychologists Csikszentmihalyi and Hermanson [28]. Defining curiosity and interest as hooks for intrinsic motivation, museums would offer various opportunities for involvement, flow, and learning. They also recommended that "the link between the museum and the visitor's life needs to be made clear" [28 p.73].

Building on this short literature review, the hacker stereotype 'professional/hobbyist' seems to pose a contradiction of intrinsic motivations (e.g., passion and fun in doing something) and extrinsic motivations (e.g., goal-orientation and career development) which needs further exploration. These motivations also need to be put in relation to hackathon characteristics and the special connection between hackers and cultural institution. In the light of the work other people have done, it becomes clear that hackathons have been mostly studied as participatory tools useful for GLAMs and well described in their methodology, while the motivation and benefit of hackers have received only lateral attention. This paper addresses this research gap and aims to contribute a richer qualitative insight into the perspective of hackers to the discussion.

3   Methodology and context

This paper builds on qualitative research in form of an ethnographic study of the cultural heritage hackathon Coding da Vinci West (CDV West) as this approach is best suited to generate the much-needed empathetic insights and further understanding of cultural hackers [29]. Based on participant observation [30], semi-structured interviews [31], and online surveys the enquiry followed two questions: why do hackers join and what do they gain throughout the process of participation?

3.1   Coding da Vinci West hackathon

The hackathon CDV West took place in Germany (Dortmund) between October and December 2019 and it was the eighth event organized under the umbrella of Coding da Vinci (CDV) – a well-known series of cultural hackathons in the German GLAM sector. Based on its experience and impact on the sector, CDV received major federal funding in 2019 and has become the dominant organizer of Open GLAM hackathons in Germany. A set of values and arrangements which are applied to all events, including this case of CDV West, define this hackathon: values of the Open GLAM movement are essential; GLAM institutions have to provide data with CC licenses; hackers use these data to create prototypes. The

underlying assumption is that culture and digital are two separated worlds and thus the hackathon timeframe is expanded to give both sides more time to get to know each other. A whole weekend is dedicated to the kick-off and exchange of cultural practitioners and hackers, which is followed by a self-organized sprint phase of six to eight weeks and concluded with an award ceremony.

While CDV sees an increase in interest by GLAMs, the communication with hackers is more instable and changes with every regional context. At CDV West the number of attendees changed over time but was estimated to be around 70 in total, of which 20 were registered as hackers by the organizers. During the eight weeks of the hackathon their numbers ranged between 13 who pitched ideas at the kick-off and 17 who presented prototypes at the award ceremony – although it has to be noted that some hackers were joining only remotely.

3.2   Methods and analysis

As participant observer the researcher joined CDV West and followed several hacking teams throughout the kick-off weekend, sprint phase and award ceremony. Participant observation was based on well-established ethical guidelines for conducting ethnographic research [32-34] and informed consent by all hackathon attendees was sought in two steps: an email informed everyone previous to the hackathon and the researcher presented herself to the hackathon audience during the observed face-to-face events. Everyone at these events was provided with an information sheet and a consent form. Research was conducted in context-sensitive and reflexive way after gaining the approval by the ethics committee of the University of Glasgow.

Before and after the hackathon event an anonymous online survey on JISC was distributed to all hackathon attendees. Survey participants could choose between four functions at the event, of which the category 'participants' represented the hackers. Within this group, participation in the survey was low: four participants in the pre-survey and eight participants in the post-survey answered the open question: "What motivates/motivated you to participate?". A total of twelve free-text qualitative answers were gathered as preliminary

information and gave first thinking points for the following steps of qualitative interviewing and coding.

Interviews were designed in the form of semi-structured interviews [31] following an interview guide with themed questions which covered creative practice, team collaboration and motivation to participate. Seven team interviews with 13 individual hackers were conducted after the hackathon, five in person and two via the video call apps Skype and Zoom. Interviewees had to have an active hacking role at the CDV West event using the provided data. All interviews were audio recorded by the researcher.

The software MAXQDA was used for the analysis of all generated data. Interview recordings were transcribed with the embedded transcription tool and coded following Rädiker and Kuckartz' guide on focused analysis of qualitative interviews with MAXQDA [35]. Grounded on a cyclical process for qualitative coding proposed by Saldaña [36], a rough category system was used as starting point for the basic coding which was then refined and extended through the coding process. For the topic of this paper, hackathon participation was structured following the categories deduced from previous studies: hobby, professional (as hacker stereotype); learning, people, doing (as hackathon characteristics); and institution, data (as cultural dimension). All direct quotes taken from interviews and fieldnotes are referred to by an anonymous numbering system ranging from Participant 1 (P1) to Participant 10 (P10) throughout this paper.

4 Findings

Using the survey data to get a first impression what hackers said about their reasons for joining, three motivational tendencies became visible: reasons concerning the outcome (e.g., building networks and connections between culture and technology), reasons concerning the process (e.g., collaboration with a team and cultural data), and reasons concerning the event format (e.g., interesting project).

In the further analysis of interview data and fieldnotes traces of the professional/hobbyist motivations were visible, but rather diverged in two groups: two

teams highlighted their professional identity, while three teams foregrounded their hobbyist approach. Two teams did not fall into either category as they had mixed motivations and backgrounds. However, in line with Moura de Araújo's findings [1], CDV West mostly attracted cultural digital experts, who work as computer linguists, game/graphic/UX designers, media artists, data scientists, library computer scientists and developers. Thus, their orientations represented their role in the hackathon rather than their professional expertise. The next sections will introduce hackers of each group to follow their narrations and illustrate the interplay of motivations with other aspects of the hackathon and the cultural sector.

4.1   The reality of 'unromantic' networking

Two interviewed teams develop digital services as freelancers or start-ups and high-lighted this professional role. In the interview with one of these teams, consisting of four young game designers specialized in 3D modelling, they expressed their frustration with the cultural sector. Prior to the hackathon they had experienced disappointing collaborations with museums that seemed to have a rather conservative stance towards technology. In turn, they hoped a hackathon would attract more technology-interested institutions and provide a fruitful environment to pave the way for paid contracts in the future. One team member commented with a sarcastic under-tone: "Sounds unromantic, but that's just how it is." (P1). Framing their approach as 'unromantic' the participant marked a difference between their pragmatism and what they perceived as romantic Open GLAM ideals.

While their strategic reasons might not be the ones promoted first by the CDV framework, they were shared by other hackathon teams that wanted to "build a project portfolio" (P2) and thought the event "a good networking opportunity" (P3). Networking, strategic partnerships and building a project portfolio subsequently functioned as crucial factors for choosing a dataset and institution to work with during the hackathon. A regional museum with two very engaged young professionals was selected and addressed as potential customer. Besides the obvious local connection one hacker explained this choice referring to their

technical expertise which matched the dataset so they could create an added value (P4). By choosing a dataset which helped them to showcase their skills and services, they could position themselves as professional agents in the field. The output was meant to be of high quality and function as portfolio project. This awareness about professional resources and expertise was shared by another agency-based hacker team who chose not to use one dataset because they simply lacked the skills to process it. This professional aspiration also became tangible in the way how these teams described their working process: a design-thinking approach with iterative cycles.

The outlook of work-related networking and the creation of portfolio projects can be assessed as extrinsic motivations focusing on the output and what participation in the hackathon leads to. This ties in with output-oriented reasons for joining found in the survey and the understanding of hackathons in computing and engineering, which have a stronger emphasis on competition, networking, and value-creation business models [23, 37].

4.2 The joy of doing 'meaningful nonsense'

Three teams foregrounded their hobbyist approach to participation, although most of them also have a professional relation with the topic and work in GLAM institutions. However, to them the hackathon was a balance to and diversion from the job and the creative practice of coding was seen as inherently rewarding activity. This approach is rooted in the joy of doing something which is not following the rules of a paid contract but instead serves as hobby – signposting to intrinsic motivations. Three interviewed teams described their individual fun and enjoyment during the hackathon as a motivation to join. Comparing coding to baking, one interviewee explained the different aspects which made coding a fun activity:

> "To engage with this data allows me to bring together different interests. At the same time, you can perceive this data again and again, you look at them, you work with the pictures or with the sounds. On the other hand, you have this constructive effect and the

> creative effect – i.e., constructive in the sense of programming,
> creative in the sense of interface and how to put these data into new
> contexts. It's simply a whole complex of activities that all come
> together and the mixture is actually what makes it fun." (P5).

Listening to and looking at cultural heritage data, using them to construct and program something new, designing and creating a new context, and spending time with programming are listed as ingredients of this hobby. At a hackathon this hobby can be shared with others and the event offered a reason to spend time together and do something together, which would not be possible during their working life (P6).

Another participant described hackathon projects as relaxing because they could let their creativity flow and produce anything that came to mind. In contrast to their daily job the output would not need to be overly serious but could be rather whacky. In this vein, the opportunity to produce "meaningful nonsense" (P7), to play around without any constraints using interesting and valuable content, would be their main motivation to participate. While at the same time they felt the freedom to follow their own interests and ideas, the production of new meaning with old cultural content was seen as a way to enhance their hobby.

Csikszentmihalyi [38] developed the concept of flow as one state of deep involvement in an activity which can be reached when challenges and skills are well matched, and goals, interest and feedback are aligned. In this group of hackers, immersion in the activity led to 'meaningful experiences' which played a major role in their hackathon participation. These insights add context to the process-oriented reasons for joining initially found in the survey and explain how they relate to increased interest in using cultural data, but not necessarily cultural partnerships. Their projects did, in fact, more often conflict with expectations of GLAM data providers because they chose their own interpretations of culture.

4.3 'Carsharing phenomenon'

Hackathons were defined as being about people, learning, and doing. But which of these aspects are important to hackers and how do they interpret them? 'Doing' was mostly valued and mentioned by the hobbyist in describing their creative practices in great detail. In this group, the immersion in the activity and combination of their skillful practice with culturally interesting content led to 'meaningful experiences' which played a major role in their hackathon participation. Their practices illustrate a form of active and creative engagement which many institutions hope for when opening up and digitizing their collections. All three teams had participated in CDV hackathons before and emphasized these positive experiences as motivation to join again.

Learning for these hackers was less prominent as motivator in advance, but was seen as a side effect of the hackathon: two teams mentioned technologies they wanted to try out, such as 3D modelling software and stop-motion animation. Their interest in acquiring new technical skills was balanced with an interest in learning something about the cultural content they chose. Within the professional group, learning was mostly intended as outcome for end-users of their projects, while their own learning was rather seen as contribution to general knowledge production. This ties in with the future imagination work which Lodato and DiSalvo [20] see in hacking.

In contrast, learning was the main motivator for two hackers who did not identify with either of the described hacker groups: one student and one cultural data provider. The student joined the hackathon to learn how to build a web crawler. They chose CDV West because the timing suited and they were looking for any kind of hackathon, culture was not important. Within the tech-hackathon community, they explained, the motto "more learning than doing" (P8) would be the prevalent way of using hackathons. The other learner initially joined in the role of cultural data provider and was hoping to see others play around with their data. When no hacker chose their dataset, they just decided to hack their data themselves and used the hackathon context to learn the front-end programming language Java Script with the help of the wider CDV community.

They were very thankful for this engagement and support, which allowed them "to build their idea on the code of someone else" (P9).

The effect of hackathons to bring different people together played a major role for all hackers and one interviewee coined this as "carsharing phenomenon" (P7): a situation in which you spend a limited amount of time with a surprising mix of people you would not have met otherwise. While professionals used this situation mostly to extend their network, hobbyists enjoyed the interdisciplinary collaboration and exchange with other perspectives. In the context of a cultural hackathon this social experience is defined by the individual relationships between hackers, organizers, and cultural practitioners. Hackers had varied experiences with cultural institutions and organizers, ranging from collaboration and support to disinterest and misunderstanding. For most hackers it was important to gain recognition for their work either directly by the cultural institution or through the award ceremony of the hackathon. The excitement of working towards the award ceremony, having a stage for creativity, and receiving positive feedback, motivated hackers throughout the hackathon.

In particular one team who had joined three CDV hackathons before described how other typical characteristics of a hackathon – time-limit and the focus on tangible outputs – increased their positive experience: "to do your own project from A-Z" and to see a result in the end would be a great feeling because "you would really reach a goal" (P10). The process was perceived as wholesome and concise, because the project has a beginning and an end. However, these impressions were counterbalanced with negative emotions they had experienced after hackathons – something they called "post-CDV depression" (P6) – when all their work was without effect and GLAM institutions were not interested in following-up on their collaboration.

5   Discussion

The qualitative analysis has looked behind motivational types, such as 'professional/hobbyist' to show how hackers link motivation and participation. Rich interview data and fieldnotes from the hackathon helped to outline two differently motivated groups of hackers who use hackathons in different ways.

However, both share a digital cultural expertise and thus form a specialized user group which differs from the majority of GLAM visitors and users. Broader audience groups did not participate in CDV West which raises the question how hackathons might become more inclusive events for creative engagement with digitized collections. This matches the evaluations of other cultural hackathons, such as Museomix. Here, Rey observed difficulties of inviting participants based on the predefinition of roles. She concludes the call for digitally skilled experts would exclude "the 'classical' visitors, the very user at the centre of the participative design methodology" [19 p.5]. In order to make hackathons more inclusive she recommends to bring in additional volunteers with the needed technical skills and in turn open the invitation for other types of expertise. Taylor et al.'s work on 'Community Inventor Days' illustrates how such an adapted hackathon version for a wider community, supported by expert practitioners, could look like. However, they also found that motivating skilled experts was more difficult than expected and would need more attention in future projects [18 p.1202].

The findings in this paper suggest that what participants had gained from hackathons motivated them to join again: the possibility of a social experience, networking, learning, and creative doing. Emphasizing these aspects in the process of inviting might address a wider group of participants and would imply an important shift of perspectives from needed skills to participants' benefits. Following Lindström and Ståhl [39] these benefits could be further developed into shared 'areas of curiosity' to provide a bridge between GLAMs and participants. The findings show that this connection between hackers and GLAM institutions is important and needs more attention throughout the whole hackathon. Within CDV cultural heritage practitioners have a rather passive role in providing cultural data for hackers. Thus, a shift to more engagement and collaboration based on a shared interest could help to mitigate the 'post-CDV depression', increase the recognition of hackers' contributions, and make the collaboration more sustainable. While the scope of this paper only consists of one case study, more qualitative research of other cultural heritage hackathons is needed to compare participants' profiles and motivations across cases. Furthermore, participatory research projects might increase the collaboration

between GLAMs and hackers and explore new ways of inviting and motivating people to hack cultural heritage.

6   Conclusion

This paper addresses the question of why hackers participate in cultural heritage hackathons. It did so by presenting and discussing data generated in an ethnographic study of the CDV West hackathon. Based on qualitative analysis of online surveys, fieldnotes and seven team interviews with 13 hackers, different interrelated motivational factors were identified: the role in which they join, the hackathon characteristics they build on, and the connection with culture they strive for. Two groups of hackers formed around these factors: one hobby-oriented group interested in creative doing and one work-oriented group driven by professional networking. Their relations with cultural heritage institutions were either outcome-oriented, as in building useful connections for the future, or process-oriented, as in collaboration and recognition throughout the hackathon. The social aspect of the event which was coined as 'carsharing phenomenon' creates the main attraction for participants – this and the hackathon potential of meaningful practices, networking, and learning could be further developed to share the possibility of interpretation, learning, and imagination based on open collections with a wider group of people.

Acknowledgements

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