Nerdistan–Designia–Journoland: Best practices in multiskilled digital journalism teamwork

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Abstract

As the appetite for more engaging digital journalism grows among audiences and advertisers, there is a need for developers, journalists and designers to work together. The work in multiskilled or interdisciplinary teams, however, is not without challenges as each professional group comes from a different culture. This paper classifies three main challenges within such team work and the ways in which cultural obstacles can be overcome: 1) Different concepts of time, 2) Isolation of professional groups in media houses, and 3) Different attitudes towards making mistakes. The paper looks at these issues through interviews with professionals working in multiskilled digital journalism teams.

The paper argues these challenges can be overcome by learning product development and project management skills; these skills are more important than learning to code or "speak code".

Furthermore the paper introduces best practices in 1) setting up a multiskilled team, 2) utilising tools for time and project management, 3) translating lingo of different professional groups, 4) breaking the isolation of professional groups in the media organisation, and 5) introducing fail-fast culture, familiar from tech companies, to legacy media organisations.

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1. Introduction

"*What* are these people thinking? And, *how* are they doing it?" These were the questions I found myself pondering multiple times a day two years ago.

I had taken up the duties of project manager in a digital journalism project. At the time, I was working as a managing editor of a women's monthly glossy magazine. Our editorial team was very small, so the digital project was a subsidiary thing for being in charge of the feature articles. I soon discovered it was not going to be easy. I had no idea how much time different stages of the project would require. I was not sure if the developers understood at all what the journalists were talking about at our meetings. I knew for sure we did not understand much of what they were saying. And when we started lagging behind the schedule, I had no idea how to help the developers.

Of course we learnt from each other during the project. The developers learnt to stay away from our office when they heard the magic words "The magazine is going to print today". The journalists learnt what *minimum viable product* means. It is a product that is published at stage in which it has only the essential features for it to function and is then further developed through customer feedback and/or data. It is kind of a test version, it might look kind of terrible, and, by definition, it does not have all the functions the final product will have. In other words, it is completely opposite to our approach to work. Glossy women's magazines are polished to near perfection before they go to print. Perhaps not surprisingly, the discovery of the concept of minimum viable product made us pull our hair out in horror and hope our readers were patient and forgiving enough to come back to this hideous creation in the future.

Because I am a media professional living in 2010's, there is no way I could decide never to work with developers again. Nor can any of those colleagues of mine who told me about their similar experiences – although many of them said they wished to do so. Our audiences get their media through social media networks on their mobile devices. What they see on their screens can no longer be digital versions of print content or left-overs from print. They want more unique and engaging media experiences from us, which means journalists can no longer do it on their own. We need to work with developers, designers, data analysts and even people from the business side to tell and serve stories in best possible ways. This means we need to learn to work together.

The purpose of this research paper is to explore ways in which this can be done better than my colleagues and I did in this project. What are the best practices in producing digital journalism in multiskilled teams? Professionals from four different media companies (BBC and The Guardian in the UK, Helsingin Sanomat and YLE in Finland) working in such teams producing innovative content have kindly shared their experiences and insights with me. My case studies and my focus are on web front-end coding, although many of my findings are probably applicable for teams working on application development and back-end coding as well. The teams interviewed are involved in day-to-day digital news work rather than larger product development projects.

First, I will review the challenges in such teamwork as described in previous academic research and discussions within the industry. Then I will introduce my case studies and discuss the challenges in relation to them. Finally, I will list top tips for media houses and media professionals. All this will be done using a more journalistic than academic method.

My finding suggests that the hot debate of recent years on whether all journalists should learn to code has been misguided to a certain extent. Instead, people working in multiskilled teams need project management and product development skills. I hope this paper will be helpful for both professionals working in such teams and management setting up these teams in the future.

2. Challenges in multiskilled teamwork

I am by no means the only one wanting better co-operation between journalists and developers. As competition for audiences and advertisers is getting fiercer, it is widely seen that more engaging digital journalism requires closer teamwork of designers, journalists, developers, sales and marketing. This is seen essential not only in order to improve the level of digital journalism as multiskilled teams are also seen important agents in the transformation of the culture and processes of journalism to digital age. The New York Times Innovation Report repeatedly calls for teams with different skill-sets sitting side by side in order to push the organisations' "digital efforts to next level" (2014, p. 76). On a similar note, Lucy Küng lists in her research *Innovators in Digital Age* (2015) preconditions for successful media innovation and concludes:

> "Interdisciplinary small teams are the basic organisational building block.
> Collaboration between product, tech, and editorial areas is a priority." (p. 16)

Of course journalists are not the only ones who need to work with code and developers without knowing much about what code does and how it is done. In June 2015, Bloomberg Business Review published a special *What is Code?* theme issue which consisted of one 38,000 words long interactive essay by writer and developer Paul Ford. In his introduction to the issue editor Josh Tyrangiel writes: "Software has been around since the 1940s. Which means that people have been faking their way through meetings about software, and the code that builds it, for generations… ignorance is no longer acceptable." (Bloomberg 2015).

If faking is no longer acceptable, how much coding should journalists and designers know? How much do developers working with journalistic projects need to know about journalism? As any successful digital journalism team has at least one designer, how much should they know about coding and journalism and how much should developers and journalists know about design? How to set up interdisciplinary teams? How to avoid cultural clashes on the way? These are the questions I am trying to answer in this paper.

In recent years, there has been a lively professional discussion on the challenges in journalist-developer co-operation. For example, the former Guardian technology editor Charles Arthur (2015) is not convinced journalists and developers should sit together "to create amazing stuff". In his blog post he calls it the "great lie of our times":

> "My advice on developer/journalist seating arrangements? Keep them well apart. (…) Don't stop the two groups talking. But let each be aware that they're like animals living at different speeds, which means that they simply won't be able to comprehend why the other side reacts as it does to some things (…). They can live a mutually beneficial existence. They just can't live in the same cage."

Following Arthur's post, WNYC Data News Team's designer-developer-journalist Dave Winer wrote his contribution in a more positive note (2015). However, even Winer's blogpost lists handicaps newsrooms are likely to have in relation to some other outlets where software development takes place:

> "They typically lack the time or money for a strong project management function. Needs are unpredictable (I don't know of many software companies where a product is conceived in the morning and then launched before lunchtime). Decision makers

are unlikely to come from technical backgrounds, and they're still adjusting to the

relatively new phenomenon of developers in the newsroom."

Previous academic research on different cultures in newsrooms is not very encouraging.

Research on earlier stages of media convergence has shown that cultural and language

problems can cause real damage. When print newsrooms have merged with a broadcasting

newsrooms, cultural differences and deep distrust between occupational groups have led some

journalists to minimise their involvement in convergence efforts (Silcock & Keith 2006, 612).

Lewis and Usher's (2014) two-year qualitative study on Hacks/Hackers network does not

paint a much brighter picture. Hacks/Hackers is an international grassroots organisation with

a mission "to create a network of journalists ("hacks") and technologists ("hackers") who

rethink the future of news and information". To accomplish this mission, Hacks/Hackers

organise talks, hackathons and parties (Hacks & Hackers 2015). Lewis and Usher discovered

that journalists and developers generally joined the Hacks/Hackers network for the same

reason: to find new more comprehensive ways to tell a story by using software. Yet there were

significant challenges in co-operation caused by differences in language and thinking between

the two professional groups. If things get difficult when journalists and developers work

together in their own free time or indeed when print journalists start working with broadcast

journalists, it is hardly surprising that there are challenges in multiskilled teamwork in media

houses.

There are roughly three areas in which multiskilled or interdisciplinary teams are required in

media houses today. The skills needed and the way in which the work is structured varies

according to the function of the team. Sitting together "to create amazing stuff" is not

essential for all of these team types to function. However, some level of understanding for each other's' culture and work is needed. These three areas are 1) ongoing editorial work, 2) editorially defined project work and 3) ongoing project development.

1. a) On-going editorial work with daily or weekly or sometimes monthly deadlines. Most of the software engineering involves light databases and is front-end client side, which means it concentrates on things that are visible to audiences. The key axis of this kind of work is design, client side development and editorial content. For this kind of work you need a permanent team working together and iterating and learning all the time. This is why they need to sit together.

1. b) A variation of ongoing editorial work is native advertising. Time pressures and tasks are similar as in ongoing editorial work, but the skillsets differ as you need a commercial person and possible someone with marketing skills.

1. c) Another variation of ongoing editorial work is format development where the team is iterating e.g. new video formats. In addition to journalism, design and developing skills, you might need a data analyst to set up experiments and measure. Format development is often embedded in the work of on-going editorial work.

2. Editorially defined project work is where you need to bring together a team for a defined period of time to solve a specific problem such as an app relaunch, an election, or a new editorial workflow. The skillset required is defined by the problem. The team can be co-sited in the newsroom but often it is best to give them an extra space, especially if the project takes a long time.

3. Ongoing product development and iteration is more ongoing product work with

software engineers working on back-end systems, managing a portfolio of products

and services, next generation products and releases.

I will now look at these challenges in greater detail as they are presented in professional

conversations and academic research. After that I will introduce my interviewees. Finally I

will discuss the challenges present in my interview material and give recommendations and

ideas for future work in multiskilled teams.

2.1. Challenge 1: Different time zones

Perhaps the most significant difference Lewis and Usher (2014, pp. 111–112) found between

"hacks" and "hackers" was the relationship with time. Journalists were more concerned with

short-term, one-off stories whereas developers wanted to engage with long-term ongoing

software development. For example in the Rochester branch of the Hacks/Hackers network in

the US, "many journalists focused on solutions to mundane problems to allow them keep up

with their increasing workloads; the hackers, meanwhile, were there to solve bigger problems

and build something they could be proud of, like a major investigative report." As one of

Lewis & Usher's interviewees put it:

"a lot of the technologists locally have very traditional heroic-journalism type views

and don't really appreciate the pressures that are on [the local newspaper] to

constantly feed the beast."

Similarly, Charles Arthur's different animals critique is largely based on his observation that the two professional groups have completely different concepts of time. In a news organisation, journalists have deadlines every day whereas developers work on a different time scale.

> "Journalism (…) is about *getting a result*, and doing so effectively, quickly and (optionally) thoroughly. It's a culture where getting it done right now is what matters. And then you move right on to the next thing, because there's always a next thing."

Developers, instead, according to Arthur, "iterate around the same thing repeatedly (…) They don't grab an idea, use their existing knowledge to turn it into a story, and put it out there."

2.2. Challenge 2: Isolation of professional groups in media houses

There is a tendency for journalists to mentally and physically isolate themselves from other professional groups. This has been explained to be due to the open nature of the occupation. Despite the existence of well-established journalism schools it is still possible to become a journalist without any formal requirements such as education (Powers 2012, Deuze 2005, Deuze 2007). The professionalisation process takes place on the job and is largely an ideological development involving constant evaluations and re-evaluations on what a "real journalist" and "real journalism" are (Deuze, 2005, p. 444). The unifying occupational principles are often shaped through competition with other occupations, especially public relations (Powers 2012, p. 26).

Willis (2009, p.13) concludes that journalists see themselves as "a kind of professional priesthood in which they, much like the clergy or even police officers, surrender to the high calling of serving others." The professor of journalism at New York University Jay Rosen (2014) goes further and compares journalism to religion with its own high ceremonies, "like the awarding of Pulitzer Prize, joining the panel on 'Meet the Press', having a dart thrown at you by the Columbia Journalism Review".

While this strong professional ideology helps journalists to distance themselves from their sources and stories, it also leads to tensions between journalists situated differently in the journalistic hierarchy, such as journalists and editors (Powers 2012). In addition it can manifest itself in arrogance towards news consumers in exclusion of others to define what news is (Willis, 2009).

Historically the discussion on what is 'real journalism' and who is a 'real journalist' seems to have surfaced when new technologies have been introduced and new groups of professionals associated to those technological innovations have entered newsrooms. In recent years, this has taken place especially in relation to social media oriented journalism as people who consider themselves as "real journalists" have debated whether interactive graphics, quizzes and making curated selections on best cat videos should be considered as "real journalism", but it is by no means the first time.

Matthew Powers (2012) analysed journalism trade industry publications that discussed the computerisation of news production from 1975 to 2011. He discovered that when new work forms are introduced to media houses, they are discussed 1) as exemplars of continuity; 2) as threats to be subordinated; and 3) as possibilities for journalistic reinvention.

As an example of the threats discourse, Powers describes how the introduction of photojournalism in the early 20th century was accompanied with editors and reporters questioning the capacity of the camera and the photographer to fulfil a properly journalistic role. When desktop publishing was invented some decades later it brought graphic designers to newsrooms. This raised concerns among journalists that visual concerns would alter the decision making process related to news production. Visual journalists themselves felt long that they held a subordinate occupational status. In fact, according to The New York Times Innovation report (2014) many of them still say they are treated as outsiders. In the 1990's a new occupational group in newsrooms, online journalists, faced similar suspicions. Print journalists thought their work was of poorer quality and that they cared too much about what audiences wanted and were therefore too commercial. (Powers 2012)

Similarly, developers have felt less welcome in newsrooms as journalists regarded their work as "merely technical". According to Powers (2012, p 33) many developers exited news organisations in large numbers during the dot-com boom around the turn of the Millennium not only because better salaries were offered elsewhere but also because they were disappointed with their subordinate status.

2.3. Challenge 3: Fail fast vs avoid mistakes

Mistakes are generally not allowed in respectable journalism. In fact, as media management teacher and former media company executive Charles Warner (2014) points out in his polemic text *Innovation in Legacy Media Companies - Not!*, the entire organisation, policies, and rules

of journalism are designed to minimise mistakes. According to Warner, this makes legacy media companies difficult environments for innovation and is an opposite approach to IT-startups and bigger companies in IT-business. These companies have become evangelists for "failing fast", stating that creating something viable, profitable, and new always requires a certain number of less successful attempts. As Warner puts it:

> "For innovation to exist, there must be an absence of fear of mistakes or failure. There must be a sense of adventure, of trying something daringly, crazily new – in other words, not in newspapers."

The NYT Innovation Report (2014, p. 31) raises similar concerns about creating a culture of experimentation, in which their record had not been sufficient. "Real experimentation is about adopting a rigorous, scientific method for proving new concepts and constantly tweaking them to be as successful as possible. This is how every major digital innovator — including Google and Amazon — works today."

The NYT Innovation report sees that the practice of "launching" one product per day that is polished near-perfection is a challenge for changing the mindset.

> "(…) a digital experiment should be released quickly and refined through a cycle of continuous improvement — measuring performance, studying results, shuttering losers and building on winners. (…) We must push back against our perfectionist impulses. Though our journalism always needs to be polished, our other efforts can have some rough edges as we look for new ways to reach our readers."

Unfortunately, there seemed to be very little material available about designers' position in digital teamwork. Yet time, isolation and different attitudes towards failing explain a lot about

cultural differences between professional groups. In the next chapter I will introduce best

practices in tackling these challenges.

3. Best practices in multiskilled teamwork

I have discussed with ten professionals from four different teams producing innovative digital journalism in legacy media organisations. I interviewed them on two main themes: best practices in setting up such teams and best ways of tackling the challenges laid out in the previous chapter. But first, let me introduce the interviewees.

3.1. The interviewees

The BBC news visual journalism unit services BBC's online and TV output with graphics and data visualisations for its TV and digital news channels. On a bigger scale, their projects range from interactive features on what it means to be a good girl in different cultures to a calculator that allows one to compare their salary to what international football stars earn and average salary of their home countries. The team consists of data journalists, designers and web developers. I interviewed data journalist Ed Lowther, data journalist Nassos Stylianou, editorial experience designer Laura Cantadori and data developer Ransome Mpini.

Developer Will Franklin works for the Guardian's data team consisting of web developers, journalists and designers. The team has similar duties to BBC news visual team. The team has, for example, worked on projects such as *Unaffordable country*, which looks at the UK housing crisis in form of an interactive map that allows one to put in his/her salary and see where in England and Wales s/he can afford to buy a house. Franklin also organises the Guardian's in-house hack days that bring together people from different departments to share ideas and make new things.

Development director Matt Gilbert works for a different kind of team at the same organisation.

He leads Guardian Labs, which is The Guardian's own branded content agency that specialises in native advertising. This means they produce content delivering the advertiser's message on the Guardian platforms in ways that are known to be attractive for The Guardian's readers. Guardian Labs have product managers, strategists, copy writers, art directors, producers and business-to-business journalists working in the team. They also use freelancers and The Guardian data resources. The agency was set up to serve advertisers better. As Gilbert, puts it, advertisers' interest has shifted from audience reach to audience engagement. One of the campaigns the Guardian Labs has ran was the Live Better campaign for Unilever. The campaign introduced small steps for better, more sustainable living in everyday life. It included short films, lesson plans for The Guardian's teacher network and branded articles.

Helsingin Sanomat is the largest daily newspaper in Finland. Similarly to the BBC news visual journalism team and The Guardian data team, its data journalism team creates data visualisations and interactives for breaking news. In addition, the data desk carries out larger digital journalism projects such as an animated feature article on a fatal diving accident and the "class machine" which told the users which social class they belong to by their answers to a set of questions. The data collected was used as part of a peer reviewed sociological research. The team has two developer-journalists, graphic designers, some of which also code, and often a journalist from some other team who spends a few months as a producer. Head of development Esa Mäkinen started the data team four years ago together with developer-designer Jarmo Lundgren. I interviewed both of them.

Yle Kioski is a one-year-old unit of the Finnish public service broadcaster YLE. Its mission is to reach out for younger audiences that do not watch, listen or read traditional YLE news, and provide them with news and current affairs content. This requires a constant lookout for social media platform use and content that works on different platforms. Currently this means a heavy focus on videos, the topics of which range from bullying to social exclusion of HIV patients and the journey of a refugee family from Jordanto Finland. In addition, Yle Kioski produces a TV programme that is aired Monday to Friday.

They also curate videos and other social media content from Finnish and international media for their target audience on social media. There are video journalists, graphic designers, an animator, cameramen, web developers, TV journalists and producers working in the team. Most team members have two or more skillsets. Yle Kioski also serves YLE as a development unit trying out new technologies, platforms and approaches. I talked with their producer Nora Kajantie and video and data journalist Tuomo Björksten.

3.2. Building a successful multiskilled team

In my interviews, three themes were raised when talking about what is needed when setting up a multiskilled team: time, clear focus and successful recruitment.

First of all, you need to accept that getting such team running takes some time which, given the current budgets in most media houses, requires trust. When Esa Mäkinen started the

Helsingin Sanomat Data team he had done some data journalism projects while working at the Culture desk.

> "I asked if I could be taken of desk work and concentrate on data journalism for three months. My stories got reasonably good ratings so after that I suggested that we should really go for this."

The management trusted Mäkinen with three people, 30,000 euros and one year of time.

> "They told me to show what we can do."

Similarly, The Guardian's data team was not to given any tight deadlines at the beginning. Will Franklin believes this was necessary:

> "Our team was lucky because it was started by [the former New York Times editor of interactive news] Aaron Pilhofer, which carries a lot of weight in this organisation so they would give us time. I don't think anyone even knew what my team was doing before we released the Unaffordable Country project which took like almost a year. You need someone senior to defend you a bit."

Time is also needed for giving some thought on work flow issues. While setting up Yle Kioski, Nora Kajantie learnt that the knowledge of news production process does not necessarily serve new ways of doing.

> "I come from a news background where you need to react and embrace new things quickly and there's not a lot of planning."

Secondly, you need to have a clear focus. At first Yle Kioski tried to cover everything, says Kajantie.

> "You need to know what is the problem you want to solve. If you want to master
>
> social media and figure out what works there, it is not a minor thing in itself. It
>
> requires the same ambition as learning to master TV or radio."

The third thing is the successful recruitment process, the importance of which was
emphasised by all the interviewees. I will now discuss this in detail.

3.2.1. Recruitment – Skills needed for multiskilled team work

The minimum of skills needed for a successful digital journalism team is programming,
journalism and design. In addition, if one wants to process masses of information, data
analysis skills are needed. And of course if the team produces native advertising, it requires
marketing and sales skills. As it is very rare for one individual to have all these skills, the
minimum size of the team is likely to be two or three. Especially the Finnish interviewees
emphasised the importance of team members to have at least two skills, which may be due to
limited resources available in Finnish media companies. The British interviewees were more
likely to say that interest in or some knowledge of other team members' fields was adequate.
As Ed Lowther from the BBC put it:

> "If you can find journalists who have a good understanding on statistics and know a
>
> bit about coding and are open to learn more about coding, it's probably a good place
>
> to start. And if you find developers who are interested in journalism and finding
>
> stories, even if they haven't worked with journalism before or have journalistic
>
> training then that's obviously terrific. I suppose the same thing can be said about

designers. People who are interested in learning about each other's disciplines and working together."

Knowledge of each other's' fields is important as it makes communication easier, said Jarmo Lundgren from Helsingin Sanomat Data.

> "Everyone should have some understanding about journalism, storytelling and visualisation so that one is for example not completely text-driven."

When it comes to other desirable qualities of team member candidates, there is one quality that seems to be appreciated more than anything else: capacity and willingness to learn.

> "One needs to like change and learn new things all the time. One is never done. This can be very stressful for some people, but those who join our team will have to accept it", said Nora Kajantie from Yle Kioski.

Nassos Stylianou from the BBC added that team members need to be resourceful in finding tools for this continuous learning process. This is his advice for setting up multiskilled digital journalism teams:

> "Definitely make sure everyone is open to learning new tools. By using all the tools that are available online you don't have to necessarily follow a specific career path. Just to know what are the best ways to learn by online tutorials is very helpful."

More than knowledge of different fields many interviewees emphasised communication skills. The Guardian's Will Franklin thinks most things revolve around the art of asking:

"It's more about who to ask and how to ask people for things, not about knowing how to build an app if it's not your day job. But just to know that this is a technical thing or this is a commercial thing and ask people."

3.2.1. Recruitment: How much should a journalist know about coding?

In recent years, we have seen debates on whether and to what extent journalists should learn coding (e.g. Gynnild, 2014, Hannaford 2015, Legrand 2010, Tate 2010). My interviewees had one simple answer to this: You should be fluent in coding if you are a data journalist, but not much knowledge is required for editorial journalists even if they work with developers. By 'not much' they meant things ranging from having a good grasp of basic concepts to overall understanding of what coding is and what one can done with it:

> *"It's good to know **some basic concepts** such as cache, how a site is built and what's the function of CSS."* Jarmo Lundgren, Helsingin Sanomat[1]

> *"A basic learning of **what you can do** with programming. Like the idea that if you are doing a repetitive task you're probably doing it wrong."* Will Franklin, The Guardian

[1] Cache is a temporary storage space or memory that allows fast access to data. CSS stands for Cascading Style Sheets. CSS describes presentation of a document including colour, font and layout. An extremely helpful crowdsourced Survival Glossary of basic programming concepts can be found on Hacks/Hackers website: http://hackshackers.com/resources/hackshackers-survival-glossary/

*"An appreciation of **what is involved on the coding side**. Because as conversations happen it's not just developers and designers who can actually feed into how the development of the piece actually comes about, but when you have a journalist who is more savvy or knows what's going on, they can have input as well."* Ransome Mpini, BBC

*"It would be good at least to understand **how code works and what can be done with it**. We hardly know how print machines work, but we know the limits they set: what works on paper and what doesn't. Most journalists don't have a clue what code can and cannot do, what is easy and what is not. It is easy to change the place of a headline in print, so people assume it's easy on the internet as well. In fact it needs to work on both small and big screens, which makes layout-related things pretty difficult and time-consuming. People don't understand this, so they demand the impossible at the last minute. On the other hand, doing a million calculations or putting a thousand dots in a map takes days if you do it manually. If you bring it to me, it would take 10 to 15 minutes. People don't understand this either so they sometimes just leave this kind of material on their desks."* Esa Mäkinen, Helsingin Sanomat

> *"The most important skill is to **understand possibilities**. There's no future for a journalist who can only absorb what he or she has been taught but can't imagine what else could be done with this or that new tool. One should be able to grasp how new tools can be used to enhance our journalism."* Tuomo Björksten, Yle

3.2.2. Recruitment: How much should a developer know about journalism?

When a web developer joins a media company, they should self-evidently know at least what journalism is.

> *"You should have **some idea of what you are doing**. So perhaps it does not work if you come straight from, say, gaming industry without any idea about journalism."* Jarmo Lundgren, Helsingin Sanomat.

Tuomo Björksten from Yle Kioski thinks developers need an **understanding of which projects are not worth doing** which gives them the ability to eliminate ideas that are not viable. According to him, the best ones keep asking questions such as: What does this data set add to the story? What questions does it answer? Is this really relevant and worth the effort?

> *"A journalist might think any data is good for data journalism. The basics of statistics are not clear for everyone."*

3.3. Tackling different concepts of time

To an extent, speed is necessary when working for media companies, especially those producing news. When unexpected big news events occur, it is required at BBC Visual Journalism, The Guardian Data and Helsingin Sanomat Data to publish interactive graphics within an hour or two. This is sometimes challenging for web developers coming from other industries as they are often used to spending more time in their projects. As Will Franklin puts it: "In a certain way developers have to adapt to speed because it's driven by news."

In fact, Esa Mäkinen says that starting the team with two journalist-developers instead of outsourcing coding to a tech company has enabled Helsingin Sanomat Data team to react fast. Quick reaction was one of their goals from the beginning.

> "It would be unsustainable from us not to publish something every day. This is newspaper business. Developers and people who do IT for a living tend to be slow and perfectionists."

There are, however, several tricks to speed things up and make things easier for everyone involved. These will be introduced in the following paragraphs.

First of all, there are two kinds of news events: unexpected ones and those that can be planned for. All the interviewed teams involved in news production planned for outlines of predictable news events as such the Olympics, elections and the Oscars well ahead of time.

Secondly, the team members have to take each other's timetables into account. This means involving developers and designers from the beginning. When this is not done, journalists present designers and developers too vague or too refined ideas, which leads to bad interactive journalism. Many interviewees had experience of being approached at the last minute and asked to "make something for the web" for a story. BBC's designer Laura Cantadori finds the other end equally frustrating:

> "Sometimes you have the journalist come to you and say ok, I want this interactive map done in this and this way. So not actually trying to involve me in the brainstorming or thinking what would actually be the best way to tell the story, which tools we can use, which elements we can introduce."

At the BBC news visual team all bigger projects, such as elections, are started with kick-off meetings with participants from all departments collaborating on the project. The idea is to develop a common understanding of the product, expectations and processes. These meetings are particularly essential if the project involves people from departments that don't work with digital projects on daily basis, says Nassos Stylianou:

> "There needs to be some kind of understanding for people who may not be familiar with data journalism or development work or TV world or radio world or online graphics. They don't know what is needed to produce them and to make them interactive."

Once the project gets started, team members need to constantly make sure everyone knows where the project is going and that everyone has enough time to do their bit. Journalists are not necessarily known for their respect for the time that is required for testing and making

things work on different types of screens. The Guardian's Will Franklin compares his current editorial job to his earlier ones in IT:

> "Generally journalists are very deadline driven. I've always worked in the past in a more structured way. So you have like a three week period with everything lined up, so each week you know what you will do. Whereas working for editorial projects you often end up spending few weeks not really knowing what you're doing and then the deadline approaches and you'll be working late and it's completely different. It's unorganised."

As Laura Cantadori from the BBC puts it, constant updates and sharing of ideas are not necessary only to make sure everyone has enough time but also to ensure they all still share the understanding about the project they are working on: "Not just having the designer designing, coder coding".

3.3.1. Time management tools

The teams interviewed for this story had different time management solutions. Guardian Labs had hired product managers for the job. Matt Gilbert recommends it to everyone:

> "They are ultimately about user experience and engagement and what makes products accessible. We get a lot of pushback and requests to make our thinking clear before we go anywhere near the developer. The product managers are doing huge amounts of screening and stress-checking, is it a good idea, how will it work, what's the realistic budget and timeline?" (For more about product management in media companies see e.g. Newman 2010, Smalera 2013 and Sundwe 2015.)

The BBC News visual journalism team measures costs of each project in time, tells Ransome Mpini. When a colleague introduces a new project to him, he tells them how much it will cost in time. He asks whether this is sufficient and if not, they start looking for alternatives.

> "And if anything in your original spec changes in terms 'no, we cannot do this,' or 'can we actually add this as well?', that is going to have a time cost to it. So you have to communicate that."

Moreover, when a journalist approaches Mpini with a story idea, they hold a discussion in which they divide its suggested features into essentials and enhancements. The essentials is the basic experience that the audience needs to get from the story. Any add-ons are enhancements. Prioritising helps timing the project.

> "You can add nice animations to a piece of work, but those animations do not necessarily need to be the core experience."

Furthermore, a lot can be learnt from previous projects. All organisations interviewed for this project keep some kind of project archive and build new projects by modifying and improving old ones. Helsingin Sanomat Data has taken the next step by building a tool called Arkku that enables journalists to build their own online quizzes, calculators, timelines, and other simple forms of digital storytelling. At the moment there are about 20 templates to choose from. The introduction of Arkku has released the Data team from routines and allowed them to use their resources for more challenging projects. All journalists are trained to use Arkku, says Esa Mäkinen.

"Our goal is that everyone can produce interactive content. It might not yet be

necessary for everyone to do it all the time, but if you never think about it, you never

do it either. We want to change journalists' way of thinking."

In order to be effective, the training has to be practical. The best way to make journalists

understand how they can use the templates is by playing and building their own funny, made-

up data stories, Mäkinen believes.

"Turning the paper process to digital is always difficult. Storytelling techniques are

still stuck with print. There is a headline, picture and some text. I suppose the

headline will still be there but the content could just as well be a quiz or an interactive

graph. People have worked in a certain way for decades, and it takes time to change

that."

According to Mäkinen, so far most journalists have been enthusiastic about Arkku.

"As with many new things, some people are wondering how they find time for this.

Of course that is relevant, but my answer is if you build an interactive story, you

might not have to write so much text. It's about reorganising your work."

3.4. Translating lingo

Successful communication between team members obviously requires regular contact. This

can be best achieved through a sitting arrangement where the team sits together. Ed Lowther

from the BBC described this kind of setup as terrific:

"Sometimes it really helps that you can just walk over to Ransome, who is our main data developer, and ask for advice. Being with designers as well is helpful because often you find that you think about things in a rather different way. Often when I'm starting to look at the data and thinking about the best way of telling the story I'll speak to our designer, who has a completely different aspect of how people will use the interactive."

Helsingin Sanomat Data desk uses people with dual skills as 'translators'. There are always two to three people present with background in journalism who can code as well. As Esa Mäkinen describes it:

"Their role is to speak journalism to journalists and code to coders. The main point is we can provide everyone with information on what is possible and what is easy."

If the team does not sit together or there are some people involved in projects from different teams, there needs to be a constant dialog that can sometimes be difficult as not everyone shares the same language. Ramses Mpini says you need to keep asking questions:

"If you bring something up, don't just assume that everybody has understood what you have said. As the project progresses and when you have a chance to actually meet or next steps are being taken, make constantly sure you keep stepping back and ask things like are we still keeping the responsive model, is that how we're still building stuff? Ok, is that our core experience? What do we classify as enhancements? There is a need for constant conversation and making sure that as a developer, even though you might think it is still early stages, these discussions are still revolving around designs."

Double checking that everyone understands what has been said is especially important. When someone joins the BBC Visual news team, he or she will spend some time shadowing all members of the team in order to have a grasp of their work and the basic vocabulary related to it, Mpini tells:

> "Sometimes you might be in a meeting, and people are using acronyms and even names of things that are common knowledge for them, but particularly as a newcomer you don't understand what they are talking about. When you spend some time with them you hear the words that are used etc. Particularly when it comes to systems that journalists use it's acronyms all the way."

Very often digital journalism projects are joined by people from other departments or teams within the house who sometimes have very limited experience of digital projects. Despite the effort of explaining concepts and processes, Laura Cantadori points out this usually benefits the projects.

> "It's good to work with someone in another team who can bring fresh ideas and different points of view. What can happen in a team like ours is that you tend to pre-imagine every project in the same way as the ones we did before. For example, there is this calculator we did a few years ago, where you put your salary and your country and you choose a football player to compare your salary with. And what can happen is, every time you think of a project you start thinking yeah, this could be a calculator."

3.5. Breaking the isolation

Another benefit of bringing in people who are new to digital journalism projects in legacy media houses is that it functions as a tool to spread new ways of thinking. Helsingin Sanomat Data desk has a two months visiting producer post for in-house journalists willing to develop their digital skills. They take one journalist at the time and the only requirement is enthusiasm.

> "The idea is that they take what they learnt to their own desks. We don't do just inter-actives or data. The most important thing is storytelling and developing the ways of doing it on the web", says Esa Mäkinen.

The Guardian has found an innovative way of bringing together people from different departments. Will Franklin organises their own internal hack days, similar to Hacks/Hackers events. Hack days are two day events and The Guardian has been running them for two years. At first, hack days were only for developers but nowadays all staff are welcome.

> "We found that developers themselves are not necessarily so good at thinking a) what's needed and b) what's commercially viable. So we're increasingly trying to get more and more other people to hack days."

In addition the idea was to erode barriers between different departments. According to Franklin, there are often trust issues between the journalists and the commercial side and often journalists lack understanding of what developers are doing and how they could contribute to their work.

> "If you just get people to talk to each other, the barriers disappear and people tend to have conversation."

Hack days sometimes start with a talk about some interesting projects at the Guardian.

Knowledge of coding is not required, attendants only need ideas, Franklin says.

> "So hack days have never been just about coding, because otherwise half of the staff
> would get really bored. We had journalists thinking about the ways to present the
> story and they were thinking about the story as we were building the tools."

According to Franklin, there are several editorial projects going on that have started at these

events. More importantly, in his opinion, the events have improved communication:

> "It's a good way to get people talking, because we work in separate parts of the
> building, maybe on separate floors. Hack days are a good way for getting people's
> faces connected."

This kind of initiative requires trust and money from the management as people are taken

away from their desks for two days and they need to pay for a venue. It might also take a

while before any results emerge, Franklin reminds.

> "It's a tough thing to say 'Here's the money to spend' with no guarantee you'll get
> anything back."

Another tool The Guardian uses to make their staff mingle is one day coding courses taught

by developers. Franklin has experience in teaching at them:

> "I've found that once you teach just the basics, even if they (non-developers) can't do
> it themselves, they get a better idea of what you can do. It's another way we bridge
> the gap between editorial and product. Getting developers to teach journalists how to
> code and then you get the name and the face."

3.6. Learning to fail fast

When experimenting with new things, you sometimes just need to produce something and put it out there. On the other hand, media companies have done this from the start. Frequent deadlines especially in news work mean that there is a culture of fast paced production and publishing less than perfect content with facts as straight as possible. In digital journalism units it is often developers, not journalists, who need to adjust to working in a fast paced environment.

According to Esa Mäkinen, HS Data has had this approach from the start.

"Of course you need to get your facts straight, but if you look at the first things we did, it looks pretty horrible. We have developed a great deal in five years", says Esa Mäkinen.

His advice for similar teams is to publish something every day, even if it is less polished.

"If one does not rely on fail fast thinking, the team will quickly become an isolated island messing around with their own stuff. It is an intolerable idea not to publish something every day."

Quick production might be typical for the news industry, but what is often lacking is the culture that embraces change: the continuous iteration process based on customer feedback and data analysis, a typical practice in tech companies product development. This kind of thinking is in the heart of Yle Kioski.

Constantly changing the product according to feedback can be seen as risky and radical for legacy media brands, such as Yle News, Finland's most trusted news brand (Yle 2015). In addition, it takes time to adopt new practices in an organisation of hundreds of people. To solve the problem, Yle Kioski was established as a more relaxed brand enabling exploration of new ideas. It was set up as an agile project always prepared to change its direction and concept, says Nora Kajantie.

> "Failing is not a nice thing to do, but if it happens, we can always make a shift and start doing something else. And we can do that rather quickly."

So far there have been several shifts, some of them quite drastic. During its first year, Yle Kioski has changed its concept five times, which obviously requires staff with the mindset for constant learning and development. The biggest shift was from producing content to Yle Kioski website to using it merely as an archive and publishing native content to social media platforms, because they noticed their target group of 15 to 29-year-olds wants content to come for them through social media. Because they are part of a public broadcaster, there is no need to attract traffic to the website.

Kajantie describes how Yle Kioski tailors their content for each platforms.

> "We see different social media platforms as different channels. Each has their own audience and you need to communicate with them differently. If we would put our SnapChat content to Twitter, our Twitter audience would think it is childish and naive, and if we would publish Twitter-style content at SnapChat, it would not work either, because the audience is much younger there."

Which social media are emphasised at Yle Kioski can also change rapidly guided by data on audience behaviour. For example, during 2015 they added SnapChat, ditched WhatsApp and started experimenting with Periscope. Furthermore, as they noticed that Facebook's algorithm favours videos over other content, they started producing more videos. At the moment they are in the process of figuring out what makes the audience watch a whole video online. So far they have found out that a successful social media video needs to be simple, short, well-scripted and evoke only one feeling. (An exception are YouTube videos, which can be more complex.) In other words, it is a completely different approach to TV news, says Tuomo Björksten.

> "That thumb movement on the mobile phone screen is extremely ruthless. If the beginning is not interesting, they will bypass it. Learning this is very difficult. You have to forget everything you have ever learnt about making video content."

Every time Yle Kioski publishes a new video they analyse statistics on its performance and draw their conclusions, Björksten tells.

> "We find the point in which people drop out. Then we see what happens at that point and just before it. What made people watch those 10 seconds and then think it was too boring after all? What went wrong? When you consider these things over and over again, you start to find patterns."

The knowledge on social media strategies acquired by Yle Kioski is transferred to Yle News through in-house trainings and consultations. So far their message has been well received, says Nora Kajantie.

> "We have been able to show them what works and what does not. They understand they have a chance of getting a much larger reach and visibility."

4. Conclusion

In this paper I have argued that multiskilled teams consisting of journalists, designers, developers are necessary for production of innovative and engaging digital journalism. Their significance is twofold. Firstly, more professionals than just journalists are needed for exploring new ways of doing journalism. Secondly, in legacy media houses multidisciplinary teams can help transform the culture and processes of journalism.

However, this type of teamwork is not always easy. Academic research and recent discussion amongst professionals involved in digital journalism suggests this is due to cultural differences between professional groups. The most significant differences include relationship with time, and attitude towards mistakes and different use of language. These cultural differences are enhanced by the isolation of professional groups in media houses.

My interviews with professionals stress the importance of product development skills, such as establishing an effective feedback loop from the audience, and project development skills, including time management and interpersonal communication skills. This research indicates these skills are more important than the ability of every team member to code beyond the basic understanding on how code works and what can be done with it. At the moment, neither product development nor project management skills are generally seen as an integral part of journalist training or short courses offered by media houses. I suggest they should be.

4.1. Seven tips for managing multiskilled digital teamwork in digital journalism

If I could now give advice to myself when I started managing my first digital journalism project two years ago, I would hand myself a checklist that looks something like this:

1. Organise a kick-off meeting for everyone involved in the project. Let everyone be creative and have an input.

2. Double-check that everyone understands everything. When new people join the team, allow them to spend enough time getting to know what others are doing.

3. Define clearly which features of the project are essential and which are add-ons. Ask everyone how much different features and functions will cost in time.

4. Make sure everyone has enough time. Set several deadlines for the journalists, the first ones for draft versions so the developers have something to work on from early stages. Tell everyone it is important to respect others by keeping deadlines.

5. Schedule regular check-ups in order to stay on the schedule and keep everyone on the same page regarding the project.

6. Keep a project backlog. Tell others in your organisation what you have learnt. Share ideas for potential further development and reuse.

7. Plan for things that can be planned. Develop routines and tools for unexpected events in the future.

As many of the best practices discussed in this paper can only be adopted and developed on organisational level, another checklist is required:

4.2. Seven tips for setting up a multiskilled team

1. Set a clear focus. What do you want the new team to achieve?

2. Recruit at least three skillsets: journalism, design and developer. Find people with multiple skills so they can work as translators between different cultures.

3. Make sure each individual working in the team has these qualities: interest in making ground-breaking digital journalism, willingness to learn, love for change, great communication skills.

4. Make communication between team-members as easy as possible, e.g. by making them sit physically close to each other.

5. Accept that setting up work processes takes time.

6. Spread new ways of doing to your organisation by starting an internal work rotation programme that involves the new team.

7. Get rid of silos in your organisation and increase the fun by organising internal hack days and hands-on staff training.

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