Documentation As Meta-Level Activity

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INTRODUCTION

We live in the so-called information society which to a large extent can also be called a document society (Buckland, 2018) or as Olivier LeDeuff terms it more drastically, following Paul Otlett (1868 – 1944), we live in the age of "hyperdocumentation" (LeDeuff, 2021). We access and disseminate information in a great variety of official or unofficial documents – websites, emails, letters, blogs, social media posts, chats, etc. The volume of documents and their constant increase confront us with an information overwhelm we must deal with daily.

Document theory offers valuable concepts and ideas that can help to analyze, understand, and potentially develop methods and tools that would allow us to better navigate the information society while keeping a focus on the humans involved. The human involved is a central aspect of the document concept while it is less so for information. However, *documentation* and *information*, go hand in hand in the documentation activity, as does light which by one arrangement can be observed as particles and by another arrangement can be observed as waves (N. W. Lund, 2004). One could say that every document is a carrier of information or more precisely a token of a specific type of information. Niels W. Lund also adds a third mandatory dimension – *communication* in his concept of complementarity, which places the documentation activity in a social context in which it is realized.

Document theory has strong and broadly applicable concepts to offer for thinking about and devising methods for dealing with the flood of documents beyond the boundaries of the concept of the document in the conventional sense. However, document theory and its concepts are not widely known or applied outside of document theory. I argue that document theory has so far not found the wide dissemination it might deserve due to the lack of demarcation with the document in common usage and the lack of concepts that are more directly accessible by practitioners and scholars outside the relatively small group of researchers who celebrate documents. Document theory, especially in its capacity as a meta-theory should achieve more clarity, simplicity, and thus fruitfulness and reach, to serve as a powerful theory outside its field.

Documents usually support processes or activities. Most of the body of document theory literature, however, focuses on rather static concepts such as the concept of a "document" as organized physical evidence (Buckland, 1997), documentality as a power to create and structure our social reality (Ferraris, 2013), or documentarity, the philosophy of evidence (Day, 2019). The focal area of this conceptual paper is therefore the documentation activity (documentation). If we want to understand an activity, it will be important to understand not only the activity itself or the system or structure in which it is embedded but also how the variables of the system relate to and depend on each other. In what follows, I will

step-by-step create the model of documentation activity.

A promising framework that reflects Lund's (2004) three dimensions, as well as the active role of the human subject, can be found in activity theory (AT) which was already pointed to, but never applied, by Olsen et al. (2012). In addition to its conceptual framework, activity theory provides a coherent terminology that can be used jointly by researchers in related disciplines (Wilson, 2006). I, therefore, develop and present a model of documentation through the lens of the activity theory.

BACKGROUND

Document theory is concerned with "the concept of a document and how it can serve with other concepts to understand better the complex areas of communication, documentation, information, and knowledge" (Buckland, 2018). Much has been written and discussed about the concept of the document and related concepts in the past decades since the beginning of the 20th century when the first documentalists like Paul Otlet, Robert Pagès, and Suzanne Briet started to ask questions about the document and to develop ideas and concepts around it. In the following, I will take a closer look at some central concepts that I will need to create my model.

Document – Over the past few decades, the field of documentary theory has largely established a concept of what a document is. A strong and concise definition of the status of a document has been provided for example by Michael Buckland (Buckland, 2018). "An object is considered to be a document when there is an assertion or a perception of evidence for some belief." According to the ISKO Encyclopedia of Knowledge Organization to qualify as a document, it must be a *material object* and must have a *creator*, and a p*erceiver*.[1] Furthermore, the following three origins of a document are provided:

i.	Conventional view:	Objects that are intentionally created as a document (e.g. a letter or a research paper). This is the document in the common parlance.
ii.	Functional view:	Objects that are made into or presented as a document. Famous examples include Suzanne Briet's Antilope which has been laced in a cage and cataloged in a zoological garden to serve as an object of study (Briet, 2006) or Michael Buckland's example of

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[1] See also: http://https://www.isko.org/cyclo/document

| | | dead birds stuffed and preserved in the Berkeley natural history museum.2 |
| iii. | Semiotic view: | Any other object that is regarded as a document by a perceiver. |

Open questions remain if non-material documents such as oral documents or performances can be regarded as a document within this definition. A more relevant open question is about the necessity of the creator AND perceiver as mentioned in the definition. This does seemingly not comply with the three presented origins of a document. The creator is evident in i., and perhaps in ii. if the presenter is regarded as the creator, but it is certainly not obvious without restrictions in iii. To heal this open issue, it could be assumed that in cases of uncertainty, the perceiver is also the creator of the document. This would be in line with Lund (N. Lund et al., 2016) who stated that "Perhaps we should abandon the notion of "user" and recognize both the author and the reader as producers." In this wider definition, however, we could also eliminate the creator and just make the perceiver-creator along with the material aspect the must-have criteria of the document status. A further open issue is the materiality of documents. Even if we include any digital document in the required material property (because they are stored and processed with the support of technical apparatus), questions remain regarding e.g. oral documents. Buckland (Buckland, 2018) also pointed to this by stating that "physical" seems preferable to "material," because it is more hospitable to the inclusion of movement, gesture, and performance." This would leave us with pure thought or "spirit" which are non-materialistic from an idealist point of view but materialistic by a materialist or physicalist point of view. Ferraris (2013, p. 230) partially solves this problem by introducing the concept of "registrations" which are perceptions accompanied by conciseness. However, according to Ferraris (2013, p. 236) materialization i.e. the inscription is needed to be able to talk about documents. Pure thoughts even if regarded as a material act within our brain or body would therefore not qualify as documents. Therefore, consciousness complements the material property as a necessary property to produce documents. This corresponds to the general view that a human (or living being with consciousness) is in any case necessary for the creation of documents. This could lead us to the very broad definition "*A document is any material object that is considered as a document by a conscious perceiver*" which would be a circular reference. Perhaps the hypothesis that "*a document is any material object through which a conscious perceiver can update or confirm its mental world model*" might help for the moment. Ferraris (2013, p. 267) differentiates weak documents (registration of a fact = evidence) from strong documents which are the inscription

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2 http://www.isko-france.asso.fr/colloque2017/wp-content/uploads/2017/09/MBuckland.pdf

of an act. The latter requires more than one party to justify and fulfill its social function.

I will return to the concept of the document later. The concept of the document is important for the development of the proposed model of documentation activity, but in this paper, the focus will be on documentation as an activity (documentation).

Documentation – If defining the document is a tricky adventure, defining documentation is really the hard problem. Here the level of ambiguity increases with respect to the more dimensionally and dynamic of the documentation activity. I will limit the definition here to a short clarification of terminology and a presentation of the three most relevant concepts or models of documentation that will help me in creating my model. But first, it should be kept in mind, the term documentation exists as a noun and as a verb which is important to not confuse one with another. In the following, I will use documentation as the verb for the activity of document production unless otherwise stated.

It is also important to note that the documentation activity described in this document should not be confounded with the activities related to the management of primary documents already produced. These activities were already pointed to by the first documentalists as of particular importance at least since the seventeenth century, as the abundance of written documents [after the invention of the printing press] required activities of indexing and classifying books and manuscripts, as mentioned in Suzanne Briet's book "What is Documentation?" (Briet, 1951/2006). In the second chapter of her book, Briet elaborates on the activities required to create a curriculum for the training of documentalists, which she distinguishes from librarians in that the former must interact with a wider range of documents and technologies to handle these. In comparison to Briet, Paul Otlet (LeDeuff, 2021, p. 47) in the 1930s had an even broader, more technology-inspired interest in thinking of activities around documents. He did not only consider those activities around documents, but documents, libraries, and organizations themselves as knowledge machines that performed processes and activities that needed to be mastered (LeDeuff, 2021, p. 47). At the time, Otlet could not have imagined how real this vision would become almost 100 years later in the light of current developments around ChatGPT. In addition to libraries and archives, document-related activities are now also carried out professionally in companies and public institutions under the heading of document management.

In the following, we will no longer be looking at activities around existing documents, but at the activities that produce the documents in the first place. Three concepts or models in document theory literature explicitly treat documentation as an activity of document production.

Documentation models – Lund (2004) introduced the following three dimensions for the production of a document:

i.	Documentation	➔	physical dimension
ii.	Information	➔	mental dimension
iii.	Communication	➔	social dimension

The three dimensions represent (i) the physical act of documentation or the process of document production, (ii) the user as information seeking and experiencing subject, and (iii) the interaction and communication with the community. Lund (2004) also introduced the concept of complementarity which means that all three dimensions exist always and at the same time within the document production process.[3] They are mutually exclusive features of the documentation activity.

Olsen et al. (2012) aimed to apply the concept of documentation along with a general document model to inform the design and engineering of information-, or rather document management systems. They argue that standard Human-Computer Interaction (HCI) methods tend to be reductionist while a complementary document approach could provide a more holistic approach to HCI. In support of their argument, they identify two shortcomings of existing HCI literature in terms of documents and documentation: First, HCI methods tend to focus on some limited parts of a system while it would be important to consider the "context" of information in a broader sense and second, the missing "complementarity" view of documentation which was introduced by Lund (2004). Olsen et al. (2012) developed a document model that they state represents "a taxonomy of the constituents of the document and […] a potential communication tool in system design".

Activity analysis is mentioned by Olsen et al. (2012) as a possible method for investigating the goals of people using or interacting with documents. By doing so, they refer to Bannon and Bødker (1991) who stated that "activities can be analyzed hierarchically where goals or objectives are broken down into sub-goals and the activities, actions, and operations leading towards the goal". This hierarchical approach to analyzing documentation-related activities pointed to is, however, not represented in their document model. A question raised but not answered by Olsen et al. (2012) is: "What are [the agent's] intentions and what role does the document play within those goals?". Questions about goals and intentions could fit into Lund's (2004) mental dimension. Until that time the body of

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[3] The concept of complementarity originally relates back to the Danish physicist Niels Bohr (1885-1962) who formulated it first as a basic principle of quantum theory for effects such as the wave-particle duality (Skare, 2009).

document theory literature consisted mostly of a third-party view on documentation.
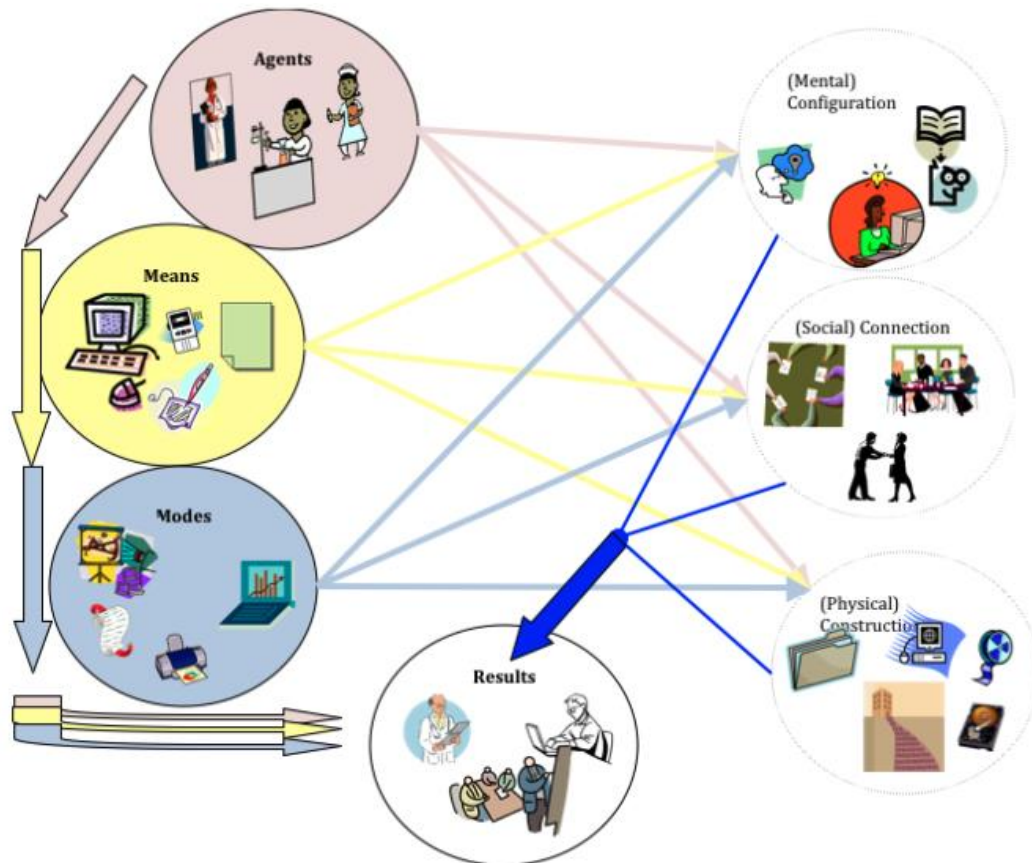
Figure 1: Schematic overview of the document model according to Olsen et al. (2012)

Three years later, Buckland's (2015) statement that "there should be a third literature corresponding to [the] "mental" aspect of documents concerned with the individual's cognitive and intellectual engagement with documents" was therefore received as an action call by researchers engaged in that field (Gorichanaz & Latham, 2016). Lund (N. Lund et al., 2016) put it, "Buckland suggests that research […] lacks deep consideration of the active role of the human involved". And yet it can be noted that there has been a first slight shift of the focus in document theory in the following years to the mental dimension, or more precisely, from explaining the document from a third-party perspective to a first-person perspective. Kiersten Latham (Latham, 2014), and Tim Gorichanaz put the experience and a phenomenological approach to documents at the center of attention. In the year 2016 their efforts to better reflect the mental dimension culminated in the model of documental becoming (Gorichanaz & Latham, 2016).

Gorichanaz explained it as follows:

> *"According to our framework, a document is formed when a person and an object come together, along with the lifeworlds of each. In this merging, the object furnishes intrinsic information (physical properties, e.g., letterforms) and extrinsic information (attributed properties, e.g., reviews); the person furnishes abtrinsic information (properties related to their psycho-physiological state, e.g., hunger) and adtrinsic information (properties related to their past and social life, e.g., memories). These four sorts of information are processed by the person, cohering as documental meaning."* (N. Lund et al., 2016)

However, Lund et al. (2016) argue that "if the document is understood as a product, then the process of production needs to be investigated" whereas the model of documental becoming proposed by Gorichanaz and Latham, "talks about the perception of the object and documental becoming, but not its physical creation". Gorichanaz (2016) also presented a model of Experience of Document Work, which however as he states has the weakness that it is disconnected from other models and is yet unvalidated.

The following three documentation models form the basis of my study:

	Complementarity	Ontology of Human Expression	Document Phenomenology
Authors	Lund, 2004	Olsen et al., 2012	Gorichanaz & Latham, 2016
Strengths	First model, time element, touches the "core issue"	Clear taxonomy of the constituents of the document	First-person perspective
Weaknesses	No first-person perspective, no guidance how the model can be operationalized	No first-person perspective, not clear about the production process and the social context	No time element, not clear about the production process and the embedding into the social context

Table 1: Relative strengths and weaknesses of existing document models based on Gorichanaz (2019)

Besides document theory, activity theory will serve as a framework in which documentation will be situated. AT was developed primarily by Lev Vygotsky and Sergei Rubinstein in the 1920s and 1930s as a framework for understanding human

activities as systemic and socially situated phenomena (Kaptelinin & Nardi, 2012). A further developed version that became widely popular, and which will be used in this study was proposed by the Finnish educational researcher Yrjö Engeström (Engeström, 1987). AT as applied by Engeström (1987) as a conceptual framework is seemingly well suited for exploring document theory as a technologically mediated and social practice, in which the human mind is expressed in the documentation activity. In addition to its conceptual framework, however, activity theory provides a coherent terminology that can be used jointly by researchers and a rapidly evolving literature in related disciplines (Wilson, 2006). Since AT offers a broad conceptual approach to model human activities within their social contexts, it is used in many cases in conjunction with other theories (Clemmensen et al., 2016). AT was already successfully applied to a field of research that places the subject in a central role which is Human-Computer Interaction (HCI) (Kuutti, 1996; Wilson, 2006). The tradition of considering the active role of the user in computer systems reaches back to Norman & Draper (1986), Gould (1988) and Bannon (1995) who published the seminal article – from human factor to human actor. At that time, AT started to be employed internationally to address new challenges associated with computers and information systems. Important contributions have been made by Bødker (1989) and Kuutti (1996). Since then, AT has developed into a fundamental concept in HCI research (Clemmensen et al., 2016; Kaptelinin & Nardi, 2012, 2018; Moran, 2005).

METHODS

The main goal of this conceptual paper is the create a comprehensive model of documentation activity which will be based on and unite existing concepts in the field of document theory. The starting point is the identified gap of a model of documentation that represents documentation as part of a larger system and that is applicable to current real-world problems arising from technological and societal challenges, such as the flood and diversity of document formats, the entry of artificial intelligence into the documentation field, and new work. In particular, the embedding of documentation in the social context is underrepresented in the existing models. A more easily accessible model based on an interdisciplinarity recognized framework could contribute to stronger linkages with other research fields and practice. A second starting point is the observation that the great wealth of document theory concepts and models is hardly known and applied outside the narrow field of document theory research. Both gaps will be addressed by the model of documentation activity.

For reasons described in the previous chapter, the model to be created should represent documentation not as something static but within a dynamic

socio-technical context. Several models or frameworks such as actor–network theory (ANT) or systems theory could be viable starting points to model relations of systems of human and human-made environments. Since the to-be-developed model shall be a simplistic macro-level representation of the documentation activity, theories that might focus too much on the micro-level or have a broad and general scope are less suited for the initial model building. The scope of the proposed model is to show the causality and relations of the high-level constituents of the system to serve as a first step of a crystallization point for interdisciplinary exchange, evaluation of policy implications, and practical recommendations for system design.

An initial version of the model will be based on activity theory. Activity theory offers a framework that puts the activity aiming at the fulfillment of the subjects' goals in the center of a broad social context. To my knowledge, AT has never systematically applied to document theory. I will therefore for the first time apply AT to document theory. Activity theory is a suitable basis for this work for several reasons:

- AT offers a framework for technologically mediated social practices and has proven its capabilities in related fields such as human-computer interaction (HCI).
- AT puts a major focus on the mental dimension which is still understudied in document theory.
- AT has been applied to the learning activity which is one of the major drivers of documentation.
- AT as will be shown can accommodate the major existing models or concepts of documentation.
- AT offers additional areas of interest in the documentation activity, namely rules and the division of labor.
- AT has explanatory power regarding relations and interdependencies of the variables of the system as well as tensions that might trigger alterations and adjustments towards a new equilibrium of the model.

The two frameworks, AT and document theory guide the following work and give at the same time sufficient free space to discover the depth of documentation and in a successive step experiment with it. Applicable concepts and descriptions from document theory will be mapped to the roles of the AT model to the extent it might help to include the missing aspects of the real world in today's document theoretical models in all dimensions – the physical, the mental, and the social dimension. The role descriptions are then examined to further identify the actions involved in the documentation activity, including the influence and interdependencies of the roles within the framework of the AT model of documentation.

The following research questions shall be answered with this publication:

RQ1: What are the constituents that form the model of documentation activity?

RQ2: How do existing document theory models fit into the model of documentation activity?

RQ3: How are the constituents of the model of documentation activity related to each other?

In the following chapter, the constituents of the model will be derived from existing models and concepts from document theory and related fields along the three dimensions, physical, mental, and social, proposed by Lund (2004). The constituents and existing document theory models will then be mapped to the activity theory model for each dimension. All constituents and dimensions are then combined, and the comprehensive model of documentation activity will be presented as well as how the constituents are related and how they might influence each other. The creation of the model is followed by a discussion of the results and an indication of limitations and the need for future work.

CONSTRUCTING THE MODEL OF DOCUMENTATION ACTIVITY

After having shed light on central concepts of modern document theory and their shift from a static third-person perspective to a more active, subject-oriented theory I am now briefly introducing important aspects of activity theory which will be important for my model.

Activity Theory – Activity Theory (AT) was developed primarily by Lev Vygotsky and Sergei Rubinstein in the 1920s and 1930s as a framework for understanding human activities as systemic and socially situated phenomena (Kaptelinin & Nardi, 2012). A further developed version that became widely popular, and which will be used in this study was proposed by the Finnish educational researcher Yrjö Engeström (1987).
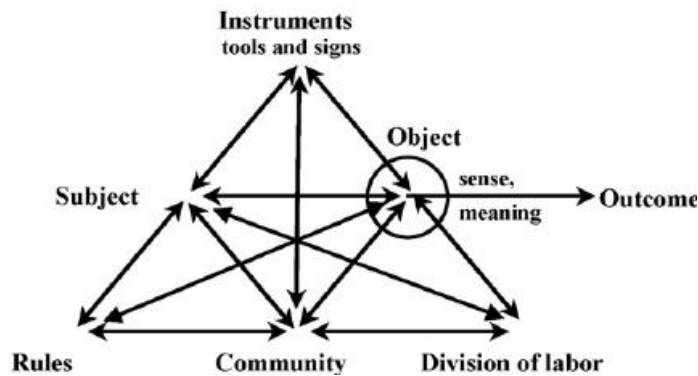
Figure 2: Activity theory, as presented by Engeström 1987

Activity theory, as presented by Engeström (Figure 2), offers a rich framework to analyze and depict documentation that includes the instruments, the subject who carries out actions to achieve goals, the community, the division of labor, and the rules governing documentation.

Based on existing concepts in the field of document theory, the constituents of documentation are to be elaborated along the AT framework regarding their roles in the document production process for each dimension. More specifically:

- the physical dimension including the instruments, means, and modes,
- the mental dimension including the subject, objects or objectives, goals, and
- the social dimension including rules, the community, and the division of labor.

The physical dimension

The physical dimension according to Lund (2004) is the dimension of documentation in the narrower sense or what can be ascribed to document production in the common parlance. The physical dimension of the documentation includes documentation activity, which is realized through actions, and operationalized by an agent with the means, and the modes of the physical production process of a document. The resulting physical document, e.g., a book, or a computer file has the quality and the purpose of an information carrier or information object, in any case, a material object. As initially stated, compared to a letter or a computer file, which are documents in the narrow sense, the concept of a document and thus documentation is much larger and more comprehensive. Anything that can be perceived and from which something can be learned (or which leads to an update or reinforcement of our world model) is a document in the sense

of document theory. *Documentation as an activity* represents the act of creation and perception of documents.

In contrast to the *document in the narrower sense*, the *document in the broader sense* also includes potential documents. Based on the presented model one can learn that it depends on the subject's goals and motives what one considers as documents or makes into documents, as long they can act as mediators for the satisfaction of our needs or achievement of our goals. Such goals could be of every sort ranging from getting a desired job position, over learning something to increase our knowledge of a specific topic to achieving enlightening. The subject thereby refers to the individual or group of individuals who are engaged in the documentation activity. They are the primary actors responsible for creating, managing, and using documents within the activity system. Subjects bring their knowledge, creativity, and intentions to the activity.
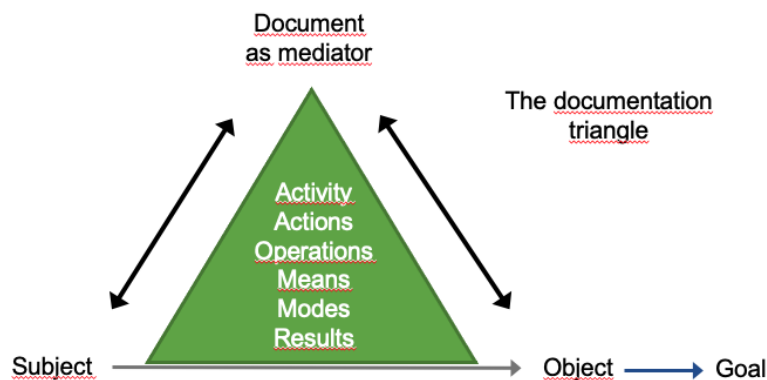
Figure 3: Documents as mediators "The documentation triangle"

The document is a mediator between the subject and its goals. Pure abstract objects instead, such as thoughts or mental states are excluded as documents as they can be experienced only by the reasoning or the conscious subjects themselves but are not able to be transmitted without inscription in some external physical form[4].

Lund (2004) describes the process of documentation as constituted by four elements, producers, instruments, modes, and document.

> *"You have always at least one human being as the producer of a document. You never have a document without a human being involved. Besides a human person you need some kind of instrument to make the document. You can use your body as an instrument by using your organ of speech or your fingers etc., but you cannot make a document without using*

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[4] External physical forms include oral transmission, gestures, and performances.

a minimum of means, of instruments. Next, the persons producing the document are always using the means, the instruments, in certain ways [modes]. These ways are very often turned into certain traditions for making specific kinds of documents. Finally, when you have some human beings using some instruments in some specific ways, you can have a result of this activity, a document." (Lund, 2004)

Whereas I argue that the resulting documents which have the agency to act as moderators that help us to achieve our objectives or goals can also be seen as instruments. The instruments can be both, the means that take part in the document production activity and the resulting document itself as they are the instruments for the achievement of our goals.

The mental dimension

The mental dimension is the realm of the subject's cognitive exposure to documentation but also where the subject makes himself evident in the documentation activity. Motivation is a psychological element that drives individuals to engage in the documentation activity. Motivation can stem from factors like the desire to communicate, achieve personal or organizational goals, comply with regulations, or gain recognition.

Subject —— Motivation, Needs, Drives, Desires ——▶ Object —— ▶ Goal
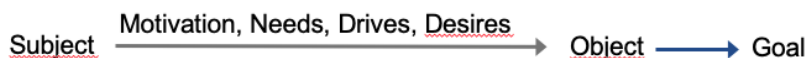
Figure 4: The mental dimension of documentation

The mental dimension is also the sphere of *information*. Information is not visible and cannot be experienced directly. To exist, information must be physically implemented on a medium, an information carrier (Floridi, 2005). Such an information carrier or information object could by a (potential) document. But not every information object is necessarily a document. The concept of an information object extends beyond the concept of a document insofar as an information object can exist as such also with nobody (no conscious perceiver) consuming or experiencing it. In its Philosophy of Information (PI), Luciano Floridi (Floridi, 2004) defines information as well-formed, meaningful, and truthful data. A document can also not be an information object if it does not contain well-formed data, meaningful, and truthful data. However, it would be sufficient if it sparks some glimpse of meaning that can update or confirm of world model. The concept and formation of meaning is the central aspect of the mental dimension.

Gorichanaz & Latham (2016) presented their model of documental becoming. Their model comprises of four types of information that are present in the documentation activity. Intrinsic information can be directly obtained from the information object such as color, extrinsic information which are attributed properties such as the information object's provenance, abtrinisic information which relates to the subject's physiological properties such as its emotional state at the time when documentation occurs, and adtrinsic information which are the associations of the subject with the information provided based on its currently existing world model and memories. Tim Gorichanaz (2016) explained the genesis of meaning within their model of documental becoming as follows:

> *"[…] the intrinsic aspect of a document—its material structure and baked-in object knowledge—goes a long way in constituting a document's meaning. This is why many people can encounter a given document and often get the same meaning out of it. But it will never be exactly the same— much less the case across cultures and in the case of numinous experiences. […] That's why we felt compelled to formally recognize the extrinsic, abtrinsic and adtrinsic information that go into all instances of documental becoming. […] Of course, the document becomes for the producer as the result of the documentation process, but it also becomes for countless beholders later."*
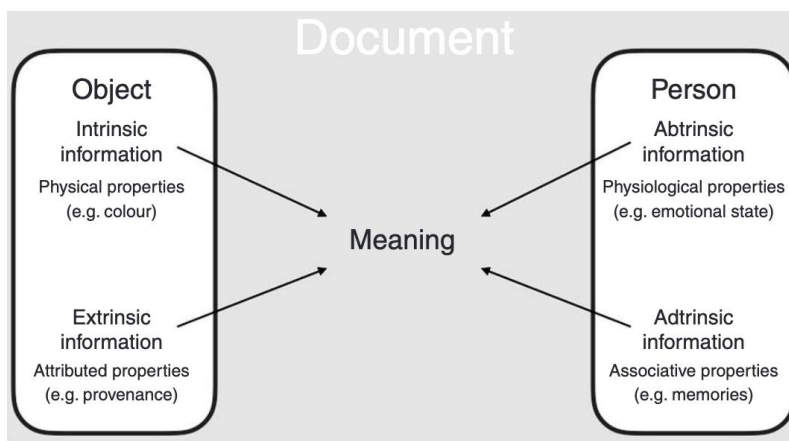
Figure 5: "Documental becoming" as process of documentation from multiple perspectives (Gorichanaz & Latham, 2016).

The mental dimension of documentation involves necessarily one of the following activities: the externalization of thoughts or mental states in the form of inscriptions on a medium or the internalization, that is, the integration of information into our internal thought world or mental states, from a document or medium by the act of creating meaning.

The mental dimension includes the cognitive learning process because the integration of information and the actualization (even the confirmation) of our models and our knowledge of the world is a learning process. It is impossible to "consume" a document without learning. We can no longer ignore information once we absorbed it. It becomes part of our knowledge and conception of the world in some form. Here we ignore the fact that we tend to forget what we have learned or that we mostly only perceive or register a relatively small portion of our inputs.

The social dimension

The social dimension or the dimension of *communication* is where the subject's concepts and models of the world touches and interacts with those of other subjects and culture as an expression of the larger social community. "The social angle is necessarily implicated in document theory because mental activity is influenced by cultural nurture and also, in practice, because the disposition of (physical) documents is influenced by social controls" (Buckland, 2016). In the process of socialization and development from infant to adult, we form our idea of the world and how we move or behave in it, we learn the rules that govern our cooperation, and we find our spaces of private and professional activity. We are dependent on our relationships with others, and we communicate with others. What others do, their actions, has an impact on us and on our actions, and our actions have an impact on other people and society. Together, we are creating and structuring our social reality with the power of documents, or what Ferraris (2013) calls documentality.

As part of a larger society, we constantly need to act and react depending on stimuli or changes in our social environment. Documentation is therefore not a static concept of how to construct and understand our social world but more than that a highly dynamic and ongoing activity. In today's social media and smartphone world, our interactions with others changed from less frequent documentation actions to a high frequency of documentation and interaction on various channels and a great variety of different formats. Also, how we communicate, and the type of messages are different compared to what we have in our mind of 10 or more years ago. Documents and messages become more of a constant flow instead of well-formed pieces of information. The same goes with our minds which tend to more multitasking and adapt to a communication landscape that is in constant flux.
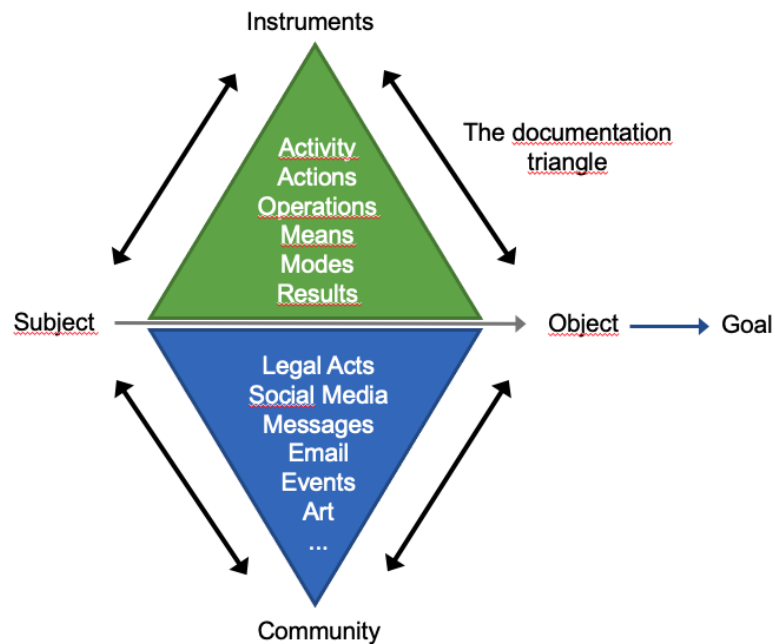
Figure 6: Documentation in a community context

Ever since the hunter-gatherer society, people have worked together in a division of labor, with people contributing to society at best according to their inclinations and abilities. This trend has intensified to this day, especially due to the possibilities of digitalization and in the context of globalization. The division of labor generates many interfaces at which it is necessary that employees create documents, while others review and approve them. The division of labor and the coexistence of larger communities, in general, has made it necessary in many areas for rules to cooperate smoothly and protect the weaker. Rules encompass the cultural norms, regulations, and conventions that guide the documentation activity. This includes rules related to document formatting, naming conventions, version control, privacy and security policies, and any organizational or cultural norms governing documentation practices.

"The fundamental problem of communication is that of reproducing a message sent from one point, either exactly or approximately, to another point" (Shannon, 1948, p. 379). What Claude Shannon describes here is the transmission of information through communication. As we have seen above, the concept of documentation differs from that of information and communication, from the first for instance because of the need for a conscious perceiver-creator, and from the latter because the noise that usually creates problems in communication is complemented by the influence of abtrinsic and adtrinsic information in the process

of the subject's meaning-making. Documentation could therefore be regarded as the broadest concept among information and communication, and the only one that requires a human or conscious being involved.
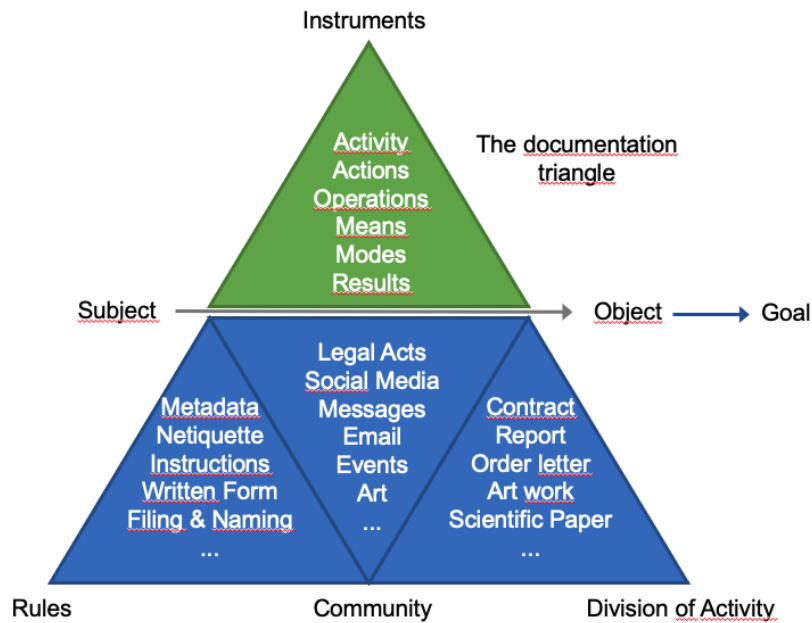

Figure 7: The social dimension of documentation

Assembling the pieces

After having laid out some basic concepts of document theory in the chapter before we shed some light on each of the three dimensions of the documentation activity as suggested by Lund (2004) and presented existing models that nicely fit into those dimensions. The mental dimension involves the activity of externalizing and materializing our inner thoughts and states of mind as information on the medium document as an information carrier and integrating information through the consumption or experience of documents and the cognitive process of learning, i.e., the updating of our model about the world. In that process, we communicate with others directly or indirectly (by knowing about the existence of others and by interacting with and depending on a larger society in which we are embedded). If we operationalize these actions with certain means and modes, we are producing documents (i.e. we engage in the activity of documentation). We also briefly revisited related concepts such as information and communication as far as they

have relevance to the proposed model. We are now ready to assemble the individual pieces. For this, we depict the AT-model and add the three dimensions as layers.
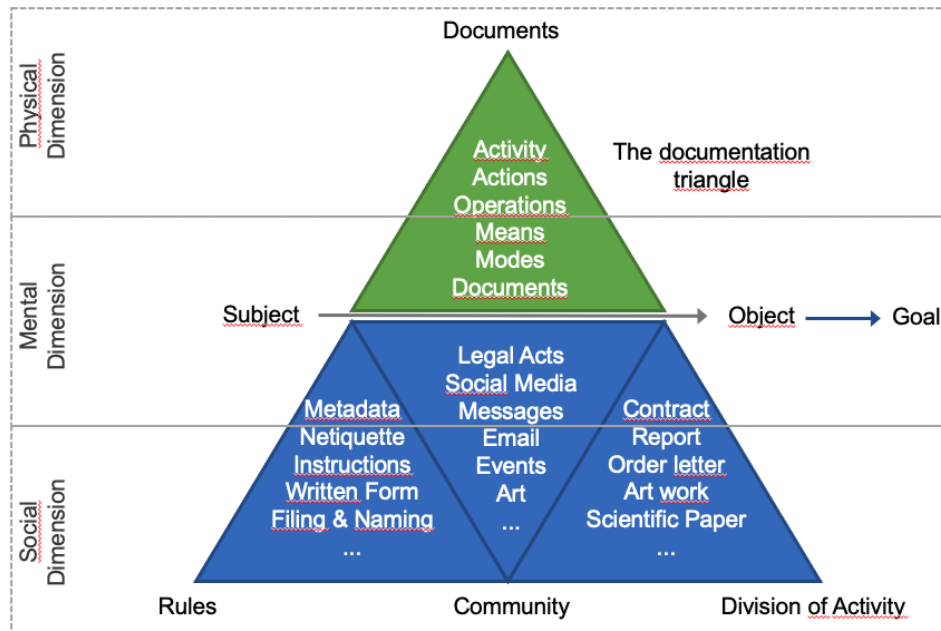
Figure 8: The AT-model of documentation

In the presented model the upper part can be considered as "the documentation triangle" in the narrow sense. This corresponds to the sphere where the physical document production takes place. However, documentation requires and involves all three dimensions. Contrary to the AT-model, the model of documentation activity places documents at the tip of the triangle. This is because documents are of decisive importance here, as they are the mediating artifacts. Rather than other instruments that are required for physical document production. However, these are also considered in the documentation triangle under the means. In the model presented here, the division of labor was generalized by a more general division of activities, since outside the world of work, the division of tasks also gives rise to occasions for documentation, e.g. to-do lists. The professional and private spheres are also becoming increasingly intermingled, which is likely to make it more difficult to draw a clear distinction in the future.

DISCUSSION

"The interest in documentation within Library and Information Science (LIS) has varied over the years" (Lund, 2009). Concepts around documentation and the document have mostly been in focus of the field of document theory, where in the last decades, major advances have been made and the basic building blocks have been built to talk about documentation. The current concepts are still facing difficulties in fully transferring the theory to the developments of the digital age which offers new documentation concepts, new tools, new devices, and new possibilities. But document theory and the existing concepts can still provide valuable explanations and guidance, especially as we are step by step entering a completely new area with more artificial intelligence-based tools involved in documentation.

The model of documentation activity can be a tool to apply current document theory concepts to a documentation environment that is in flux and which we can currently hardly grasp. The constituents within an activity system are interrelated and dynamic, and they help to explain how documentation activities are situated within broader sociocultural contexts, how they are influenced by various factors, and how they contribute to achieving specific objectives. An important aspect of the activity theory is that conflicts, contradictions, and tensions can easily arise within an activity system. These tensions may be triggered by technological advancements such as the introduction of ChatGPT, new forms of work that have been introduced during the COVID pandemic, differing goals, or competing interests within the community. Changes to one variable can upset an existing balance within the system and require adjustments to other variables in the system. For example, the introduction of new technologies such as ChatGPT may require new ways of working, new ways of handling documents, and new rules. Similarly, new ways of working or living together may require new ways of handling documents and new rules. But also new rules or laws can cause friction in the system until adjustments and a new balance are found. This makes it clear that documenting cannot be static but is subject to permanent change and pressure to adapt. The model presented here can be further developed, detailed, and updated in the individual areas. The model is suitable for simulating and analyzing the effects of changes in individual variables.

The development of documentation activity is an ongoing process within the activity system. Individuals and communities may learn from their experiences with documentation under various circumstances, adapt their practices, and develop new skills or strategies over time.

LIMITATIONS

The presented model is a first attempt to consolidate the body of knowledge about documentation as an activity. This paper must suffice with rough descriptions of the constituents and the relation between them. More light should for example be shed on the rules governing documentation and their interaction with the other constituents of the model. It would be interesting to find out how rules can be adapted or how they can be better considered in the policy process. This is of particular interest in the current phase of AI development. Application and testing of the model might further contribute to its validation.

CONCLUSION

Document theory as a meta-theory requires an exchange with other fields to be effective. The developed model of documentation activity can support this exchange with its comprehensive but accessible view of documentation and by building on activity theory as a widely accepted and applied framework in related disciplines.

The model also puts the human in the center as the relevant actor in the documentation activity. In recent years, the human or user perspective document and file management activities has mostly been discussed in related literature in personal information management (PIM), group information management (GIM), HCI, and information behavior literature (Bergman, 2020; Dinneen & Julien, 2020; Wilson, 2006). The findings might contribute to the development of additional theoretical linkages and improved theoretical and empirical rationale for existing linkages between document theory, personal information management, group information management, human-computer interaction, and the study of information behavior. The findings might offer points of departure for the further theoretical foundation of PIM and GIM.

The proposed model has the potential to contextualize the current rapid technological and social developments and to formulate concepts for the future of documentation.

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