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Knowledge Concepts for Analytical Purchase on Mobility as a Service and Future Research

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Abstract

Autonomy as a merit for eudaimonic well-being and subsequently mobility as a means to autonomy, are well versed topics within the academic discourse. However, this perspective is largely neglected within transportation benefit appraisals, which are predominantly approached through hedonic perspectives on well-being and, consequently, evaluated using utilitarian economic heuristics. This paper contends that under the framing of Mobility as a Service (MaaS), the utilitarian economic perspective on evaluating transport benefits, in which travel is regarded as a derived demand, needs re-interpretation. This paper adds to the conceptualization of MaaS by posing the question: What type of motilities would worth sustaining? From this we correlate MaaS with concepts Reflexivity and Contingency. We contribute to the discourse by presenting a thought rational on MaaS and the Value of travel, which allows for scope when appraising MaaS related schemes. From this study we conclude the normative or oughtness of eudaimonic well-being when appraising MaaS schemes and servitized mobility alike, given the lopsided representation of hedonic versus eudaimonic well-being in utilitarian economic methods for determining the value of travel.

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Keywords: Mobility as a Service, MaaS, Contingency, Value of Travel, Utility Theory, Eudaimonic Well-being, Hedonic Well-being
Type your keywords here, separated by semicolons ;

1. Introduction

Mobility as a Service (MaaS) is still in its infancy since concept inception via Heikkilä (2014). However, given the rate at which this concept is growing, it is only natural that some ambivalences became part of its make-up (Jittrapirom et al., 2017). This is primarily a result of concept tractability from an economic, institutional and operational or

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application-based vantage, devoid of sound theoretical discourse on rudimentary enquiries, such as what it is to servitize mobility. Given the notable avenues through which the academe has contributed to MaaS, enumerated by Smith et al. (2018), this paper contributes to the conceptualization of MaaS, of which several treatise by the likes of Kamargianni et al. (2016); Kamargianni, Li, and Matyas (2016); Tinnilä (2016); Jittrapirom et al. (2017); Sochor et al. (2017) has scoped the trajectory. This paper adds to the discourse by posing the question: *What kind of mobilities would be worth sustaining,* section 2. From this thought rational, MaaS is correlated with concepts of *reflexive mobility*, section 4 and *contingency*, section 5. The discussion is extended to, a thought rational on MaaS (servitized mobility) and the value of travel, which allows for analytical purchase and scope when modelling or appraising MaaS schemes, section 6. The paper is concluded by summarizing key points to take away, section 7. However, no paper is conclusive without an overview of the topic in question and thus include in the discussion an introduction to MaaS, section 3, but do so laconically as several treatises replete with referenced literature exist (e.g. Kamargianni et al. 2016; Kamargianni, Li, and Matyas 2016; Sochor et al., 2017).

2. What kind of mobility would be worth sustaining?

This research spawned from the question posed by Gudmundsson (2004) in his scholarly work on sustainable transportation. "...*what kind of mobility would be worth sustaining?*". The answer to this question is not quite straight forward. However, the current transport systems, at large, reveal an imbalance between human activities and nature to an extent where one cannot confidently ensure that future generations have the same or improved possibilities as do contemporary generations. The answer to the question posed above would thus converge towards mobilities, which are based on transportation science solutions that are cognizant of their inherent ambivalence and can be teased apart by notions of reflexivity, contingency and ambiguity (Beckmann, 2004). Herewith the reader's attention is drawn to a mobility type, which stems from the book entitled *Risk Society*. Here, Beck and Ritter (1992) theorizes a society which does not only concern itself with the production of goods but abate adverse environmental effects through the distribution and re-distribution of goods (Beckmann, 2003). The underlying premise is one of reflexivity in which the ritual of *"reflection contains the knowledge about risks of one's unintended consequences"* (Nielsen, 2005). Beckmann (2003) naturalizes this idea within transportation and formulates the term *Reflexive Mobility*, which he defines as *"those mobilities that are self-critical. In other words, mobilities that take a more critical stance towards their own unintended consequences"*. *Reflexive Mobility* thus reflects on the negatives of its operations for improvement, and in this manner, sustain itself, self-diagnosis, reform and subsequently, longevity. *Reflexive Mobility* would thus be such a mobility type worth sustaining.

Lemma 1 *Mobilities worth sustaining are reflexive and thus cognizant of their own inherent ambivalences and can be teased apart by notions of reflexivity, contingency and ambiguity.*

3. Mobility as a Service - Definition

MaaS centers around the acute articulation of various transport agents or actuators, orchestrated by a Mobility Operator (MO) (Heikkilä, 2014) or Mobility Provider (MP) (Datson, 2016), the result which is dispensed as a "pay as you travel" service provision model with an accented human centric approach. MaaS advocates a single point of interaction via an integrated platform or a mobility platform for travel service acquisition (Finger et al., 2015; Lund et al., 2017), thus allowing improved fluidity between traveler and travel service but equally reducing the inefficiency often experienced with the fragmented transportation industry. However, such a transaction requires the integration and synergy of ticketing and payments, transport modal integration, ICT integration and institutional integration (Kamargianni et al., 2016).

MaaS calls upon the MO bearing the insight and understanding of the potential of articulating various transportation entities and activities between both public and private sectors, harnessing the power of big data and then leveraging technology to piece it all together in the form of a mobility service (Singh and Briggs, 2013). It would thus suffice to define the MO as an independent body whose platform is the most single point of reference for the subscriber's

(traveler) route which integrates the relevant elements of mobility and then package and dispense the mobility service on a subscription-based model.

4. Reflexivity of MaaS

Assessing the state of art of the current MaaS literature, it can be conceded that MaaS is a reflexive response to the concerns of the cultural patrimony of an autocratic transportation system. Rephrased, MaaS vision encapsulates the idea of a mobility type that is reflexive, because it addresses the reduction of reliance on private car ownership, it is adherent of new shared mobility patterns, places emphases on the ease of access to mobility and advocates more time for social activities (Heikkilä, 2014; Hietanen, 2014; Rantasila, 2015; Karlsson et al., 2017), all of which are anticipatory outcomes addressed by Reflexive Mobility (Nielsen, 2005).

The concept of reflexivity is stoked by MaaS' core innovation namely the MO, which it brings to the transport sector. The MO firstly aggregates and/or integrates various transport services using a digital platform (Datson, 2016) and secondly, provides access to MaaS through either a period based subscription or a pay as you travel service provision model. The value proposition of the service provided is such that it bundles several transport services to meet the end-users' travel needs.

The nature of these transport service bundles is endless. However, a potential outcome, as a result of the nature of the bundled travel services or mobility package, can be such that it enhances the traveler's end to end travel experience. This can be done by providing assistance through every phase of the journey, but equally shaping better lifestyle decisions by managing customers' need to travel, should alternative insightful means be available (Datson, 2016). This perspective aligns with mobility not only regarded as a derived demand, a theoretical framing by utilitarian economics, but also as a standalone activity that can be regarded as a capital resource which contributes to social well-being (Shliselberg and Givoni, 2017). This understanding can be compounded by viewing mobility in tandem with its equal and opposite, immobility, as the one does not go without the other. This reasoning affords one analytic purchase on carving out the framework for servitizing mobility, and subsequently delineate mobility from transportation and the notion of servitizing mobility as supposed to servitizing transportation. This type of rationale resulted in querying the contingency of MaaS.

Lemma 2 *MaaS is a reflexive response to the concerns of the cultural patrimony of an autocratic transportation system.*

5. Contingency of MaaS

MaaS is an emerging concept, which has been receiving increased attention. However, it faces several institutional barriers on a macro, meso and micro level (Mukhtar-Landgren et al., 2016; Lund et al., 2017). It is thus necessary to question the contingency of MaaS. Contingency in this context alludes to the scope of interpretation of mobility within the framework of servitized mobility and subsequently, the granularity of servitization required for servitizing mobility. Besides the work of Tinnilä (2016), where the permeating trend of servitization into the public sector is reaffirmed, inclusive of a review of the research areas, which led to the servitization of mobility, there has been no explicit attempt to stake out the scope to which MaaS sees mobility to date. Does servitizing mobility both include the servitization of mobility's quantitative and qualitative aspects? What are the underlying academic theories in current mobility services? Which theories provide the best fit to findings from empirical studies of MaaS (Booth *et al*., 2012)? Does the phrase "Mobility as a Service" match the mechanics of servitizing mobility? As such, the underpinning epistemological and ontological foundations of MaaS has not clearly been marked. The detail of servitization necessary for mobility to be consumed as a service, with little to zero adverse effects on the transportation of goods and people, needs greater clarity. In this regard the contingency of MaaS remains questionable.

6. MaaS and the Value of Travel

This section contends that under the framing of MaaS, the utilitarian economic perspective of evaluating transport benefits, in which travel is solely regarded as a derived demand, needs re-evaluation. A two-prong approach is adopted to formulate the plausibility of the latter maxim by means of a rudimentary operational vantage, and through the pursuit of well-being and mobility.

6.1. A rudimentary operational vantage

It is well received that the first port of call for a potential MaaS scheme would require 1) ticket and payment integration, 2) modal integration and 3) ICT integration. The entirety of items 1 to 3 is presented by MaaS as a conclusive (door-to-door) mobility package, available for access via a digital platform as either a service subscription or pay as you travel format. See Kamargianni et al. (2016) for a more elaborate description of items 1 to 3. Furthermore, these three aspects of integration fall within what Preston (2012) denotes as the horizontal integration of transport and are necessary for the articulation vis-à-vis, the physical, operational and functional aspects (Potter and Skinner, 2000; Hull, 2005) of a MaaS scheme. Contrary to the horizontal trajectory of transport integration, is vertical integration. This refers to integrating transport with other spheres of governance (Potter and Skinner, 2000) directly concerned with social development, for example, health, education, housing, income, political and social inclusion as it broadens the opportunity-scope, vis-à-vis access, of travelers to achieve their life objectives (Shliselberg and Givoni, 2017) and quality of life. This message, empirically, is strongly echoed in the works of Ettema et al. (2010); Delbosc (2012); De Vos *et al.* (2013). Concurring with the central transport sustainability theme of this research, Preston (2012) depicts an "integration ladder" revealing the degree of integration is proportional to the level of sustainability. It is within this vertical form of integration in which the potential lie to re-evaluate mobility within the MaaS framing, not only as a means to an end but as a standalone activity which contributes to subjective and objective well-being. Moreover, the vertical integration compounded with the servitization reform (Vandermerwe and Rada, 1988) in consuming mobility, which is unique to MaaS, hold potential to structure mobility packages such that it encourages improved lifestyles. For example, this may include strategies to attract patronage on motorized public transport by leveraging the option to use in-transit value-added services in exchange for the percentage of travel conducted with non-motorized travel. Holistically, the notion of servitizing mobility brings to the fore, valuable additions to improving the experience of mobility. More importantly, it is argued that servitizing mobility holds the potential for travelers to not only make subjective but also objective gains to well-being, by accumulating capital stocks from everyday travel, which can be exchanged for alternate life-enhancing capital stocks outside the mobility sphere. A key aspect of making objective gains to well-being would largely depend on how legislation and value are ascribed to the lifeblood of the transport systems of tomorrow, namely data. As a result, negating travel time, when appraising transport benefits, is not accurately exemplary of this phenomenon and the derived demand perspective adopted when appraising transport benefits would then not truly justify the value of mobility, which at the end, will depend on the level of vertical and horizontal integrative potential of the transport network.

6.2. The pursuit of well-being and mobility

The derived demand paradigm as the consummate behavioral impetus for travel and subsequent utilitarian heuristics for appraising the value of travel is a unidirectional take on how travel affects well-being and consequentially devoid of holism. The notion of holism with regards to well-being is brought into question as it reverts back to the assertion in section 2, where Reflexive Mobility is hypothesized as a mobility type worth sustaining. Concomitantly with this assertion is sustainability and what it is to sustain a socio-technical system in constant flux; in that regard, the effect of travel on human well-being is not conclusively accounted for. For example, Mokharian and Salomon (2001) expounds a plausible argument that travel is often such that the destination takes on an ancillary role to the act of journey-making and Shliselberg and Givoni (2017) asserts that motility, the potential to move (before travel has taken place) naturally affects well-being. De Vos et al. (2013) holistically delineates five ways in which travel affects human well-being, replete with accounts of empirical research, these being (1) the experiences during destination-oriented travel, (2) activity participation enabled by travel, (3) activities during destination-oriented travel,

(4) trips where travel is the activity, and (5) potential travel (motility). However, despite these findings items (1) and (3) to (5) are still largely marginalized, or the psychological and cognitive decision- making processes are incongruously mapped by random utility models such as the successful multinomial logit and the probit models (Berkowitsch *et al*., 2014).

The above gain further traction with the examination of the utility constructs laid out by Kahneman et al. (1997). Travel mode choice employs decision utility and largely neglects experienced utility. Decision utility is concluded from observed choices, by either direct comparison of similar entities or by indirect methods, such as the willingness to pay. In transport economics, a weight is assigned to an outcome, which is usually a trade-off between travel time and cost. This trade-off is premised on the vicarious perception that choices are optimized as to obtain maximum benefit or utility. Furthermore, experienced utility is derived from the experienced outcome of choices and is argued to be closest to true utility. The conclusion from Kahneman et al. (1997)'s work is that there is analytical use in delineating amongst different utilities as supposed to masking the divergent motives for human choices under a unifying measure of observed choices, namely decision utility. This statement holds significant merit, given the dictum on which a service process is premised, namely the presence of customer inputs (Sampson and Froehle, 2009). As such, with the predominant absence of experienced utility, the question arises on the extent to which decision utility accurately reflects the value derived from an outcome within the remit of human-centric mobility concepts such as MaaS. If experienced utility is to be accounted for, on which philosophical findings, hedonia and or eudaimonia, should the evaluations of how this utility aids overall human well-being be grounded?

Given the above, it is proffered that the autotelic and potential value of travel, items (1) and (3) to (5) become more prevalent within the space of mobility and the servitization of mobility vis-à-vis MaaS. What lends credence to the former is the cursory understanding that mobility is implicit to autonomy and autonomy is central to psychological well-being (Ryan and Deci, 2001; Deci and Ryan, 2008; Tomer, 2011; De Vos et al., 2013; Nordbakke and Schwanen, 2014; Kokkoris, 2016) and according to Waterman (2008), a correlate to eudaimonic well-being. Given the findings where respondents have shown to not engage in cognitive processes of fully evaluating their happiness, when engaged in a routine activity[†], this section concurs with the former findings, but further postulates the evaluation of one's well-being does perpetuate, but rather in a psychological well-being framing, rooted in eudaimonic philosophies. An understanding which allows one to segue to the primary tenet of this section, framed in lemma 3.

Lemma 3 *The normative or oughtness of eudaimonic well-being when appraising MaaS schemes and servitized mobility, given the lopsided representation of hedonic versus eudaimonic well-being in utilitarian economic methods for determining the value of travel* (De Vos et al., 2013).

Lemma 4 *Although individuals do not engage in cognitive processes of fully evaluating their well-being when engaged in routine activities, it is postulated that the evaluation of one's well-being does perpetuate, however, in a psychological well-being framing, with regards to positive psychological functioning, rooted in eudaimonic principles.*

As a primer to this discussion, the same thought rationale is put forth which Chorus (2015) adopted for analytical purchase on his discourse of expected utility formalization of morality based on the 'veil of ignorance' postulate, by asking the following: Is travel solely a notion of derived demand and is utility maximization truly descriptive of how humans behave or is it rather normative, as in, how they're supposed to behave? Standard mode choice models regard people to be utility maximizers an understanding primarily rooted in hedonic philosophies of well-being (McFadden, 1986; Tomer, 2011; Nordbakke and Schwanen, 2014).

Hedonism is a pursuit of preference satisfaction to maximize well-being by seeking that which gives pleasure and abating displeasure (Deci and Ryan, 2008; Ryan and Deci, 2001). This definition of hedonism aids in clarifying the

[†] This finding was concluded from a study where the well-being vantage was SWB which stems from hedonic philosophies, see Abou-Zeid and Ben-Akiva (2010). SWB is classified by frequent experiments of positive effect versus negative effect over some period of time and a cognitive subjective self-assessment of ones satisfaction with life (Waterman, 2008). It is the framework through which happiness was understood by many in the field for a long time.

derived demand dictum; an individual see benefit from engaging in activities presented by an end destination and would subsequently want to reduce the cost and time (displeasures) to reach the destination in question (Mackie, et al., 2001; Abou-Zeid and Ben-Akiva, 2012). Hence, the demand for travel is derived from the demand to partake in activities. Although it was framed within Subjective Well-Being (SWB) whose formulation lie in hedonia, Abou Zeid (2009) has shown that the propensity to partake in activities is positively linked to well- being derived from activity participation and De Vos et al. (2013) provides a collection of empirical studies, reporting that out-of-home activity participation improves well-being. Furthermore, utility theory provides the mechanisms to determine the degree of preference, of non-adversarial self-interested individuals, across alternative choices, as it is assumed the individual will behave in such manner as to maximize its expected utility over choices. However, given Allais paradox (Allais, 1953) individuals often set at naught, expected utility's linear assumption, vis-à-vis the strong independence axiom, showing non-linear choice behavior (Hong and Waller, 1986) and subsequently revealing its normativity with regards to how individuals conclusively behave (Dar-Nimrod et al., 2009; Lai, 2011). Nonetheless, the derived demand maxim speaks to the motivation for travel. On that note, the critical reader may assert, for the sake of analytical parsimony, Maslow's Theory of Human Motivation (Maslow, 1943), the Theory of Self-Determination (Ryan and Deci, 2000), the Theory of Planned Behavior (Ajzen and Madden, 1986) equally comports with the derived demand dictum and proves more functional, thus pursuing a route through the subjective or imputed motivations of travel may prove confusing and laborious. However, Mokhtarian et al. (2015) reveals via close examination of the above theories that the derived demand dictum and the conception of utility maximization addresses the extrinsic motives and largely neglects the intrinsic motives for travel. It is the intrinsic motives for travel that allows cogent grounds for refuting the sole argument that travel is derived (Shliselberg and Givoni, 2017). In order to gain analytical traction on this matter, the potential and experience of travel need to be accounted for in choice modelling. Given the core theme of sustainability in this research, the enquiry into well-being is directed at how this experience and pre-empted mobility stock aids in overall human well-being, as individual and social well-being is subtended within the remit of social sustainability (Delbosc, 2012).

As matters currently have it, the derived demand dictum and utility maximization does stem from hedonistic well-being philosophies, but what's largely missing from this discourse is the pursuit of well-being via eudaimonism. At the expense of tautology, this becomes important when bringing mobility into the discourse and more so the servitization of mobility, as mobility not only pertains to the capacity and potential to move but equally the psychological value or meaning derived from the experience of being mobile, that is, the embodiment of mobility (Cresswell, 2006). In that regard, mobility as an analytical construct accounts for both the extrinsic and intrinsic motives for travel.

In philosophical analysis hedonia is contrasted with eudaimonia. Eudaimonic well-being surmounts to the pursuit of self-realization and finding meaning, the expression of virtue and the fulfilment of ones daimon, where daimon is a representation of one's true potential (Waterman, 2008; Waterman *et al.*, 2008; Tomer, 2011) or "a perfection to which one strives, giving meaning and direction to one's life" (Ryff, 1989). In this regard, well-being is more than just happiness or the attainment of desires but more a state of being fully functional (Ryan and Deci, 2001) and is experienced subjectively in doing what is worth doing for having what is worth having (Waterman, 2008). As an objective construct, eudaimonia can be seen as leading a virtuous life and rumination. Included in this objective vantage is the process of self-realization (Waterman, 2008). Although there is no instrument at present to measure eudaimonia as an objective condition (Waterman, 2008), Ryff (1989) identified six core points of convergence from the extensive literature for defining positive psychological functioning, as to present a more parsimonious summary from the many loose conceptions at the time, which had a dire empirical impact. These are (1) autonomy, (2) environmental mastery, (3) personal growth, (4) positive relations with others or positive relatedness, (5) life purpose, and (6) self-acceptance. In this regard Ryff (1989) developed a lifespan theory of Positive Psychological Well-being, influenced by Aristotle's *Nicomachean* ethics, the grassroots level for eudaimonia as it is understood today, and in so doing provides an operational definition for eudaimonia, and subsequently indicative of an objective state of eudaimonic well-being (Ryan and Deci, 2001; Waterman, 2008). The above variables, however, give rise to eudaimonic well-being and, as such are correlates to, and not particular defining variables of eudaimonic constructs (Waterman, 2008).

Making use of the potentially useful insights gained through Ryff (1989) operational definition of eudaimonic well-being, as an objective condition, involves rendering it into a form more congenial to corporeal mobility. Of note to

the critical reader; the analysis which follows is cursory by intent, as it beckons replete investigation in De Waal et al. (Fortcoming). Nonetheless, as a primer to the following analysis, we firstly recall mobility, within the confines of lay parlance; the potential and capacity for corporeal movement, of which the term motility captures the meaning of this maxim, and secondly mobility as an autotelic construct - the embodiment of mobility and subsequent experience thereof (Nordbakke and Schwanen, 2014). From a eudaimonic well-being vantage, motility can be regarded as the logic behind how an individual mandates mobility potentials within its biosphere for personal flourishing (Flamm and Kaufmann, 2006). The term flourishing is used here, as it falls in line with the works of Ryff in her translation of eudaimonia as flourishing rather than happiness - understood to be a state affiliated with subjective well-being and primarily rooted in hedonic philosophies. Moreover, this stance allows enquiry into mobility motives devoid of the individual seeking to maximize utility, through a voyage of pleasure attainment whilst relenting displeasure. Motility comprises (1) access - mobility resources available to actualize mobility, (2) competence - a skill set necessary to draw utility from the said resources and (3) appropriation - evaluation of the said resources based on how it ties in with an individual's motives (Kaufmann et al., 2004; Flamm and Kaufmann, 2006). (Kaufmann et al., (2004) further delineates competence into (2.1) physical ability, (2.2) acquired skills and (2.3) organizational skills, herein enumerated in Fig. 1.

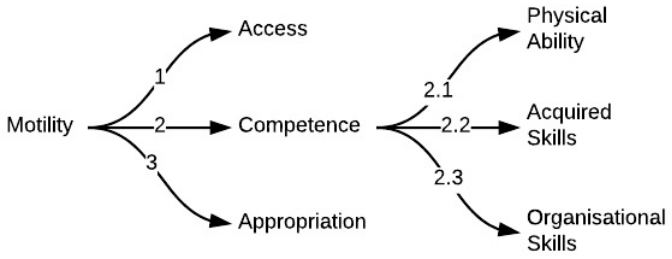

Fig. 1 Motility Topology (Kaufmann et al., 2004)

With regard to *access*, (Kaufmann et al., 2004) denotes it as a selection of mobility options, given certain contextual constraints, in addition to spatial and temporal factors. These contextual constraints can be inferred to have a direct correlation with the level of network integration with other spheres of governance, vis-à-vis section 6.1. It may also argue that available selection of mobility options, from a eudaimonic vantage, is a valorizing factor in mobility and the ability to curate from the available options lends itself to motility's *competence* construct. The *organizational skills*, a delineate of the *competence* construct, become important when curating amongst mobility choices as this process involves e.g. planning and synchronizing activities, acquisition of information, abilities and skills. Deci & Ryan (2008) frame it as the *'experience of choice'*. As such, motility's *access* and *competence* constructs can be seen to lend itself to Ryff (1989)'s metric of *autonomy*.

Autonomy relates to self-governance and subsequent self-regulation, as those who act autonomously takes ownership of an activity and reflectively concurs with them in the highest order possible. This can also be manifested through the acquisition of skills, namely the acquired skill construct in Fig.1, to master said tasks, but also comprises with an individual's internal organizational skill set to deconstruct any complexities in skill acquisition. Autonomy is also in accord the ability to curate freely amongst finite options (Waterman et al., 2008), of which the notion of bounds should not scupper autonomy nor should acting against a constraint imply autonomy (Ryan *et al.*, 2008). In Ryff's (1989) work on psychological well-being, the freedom to choose and the ability to curate amongst options (Deci and Ryan, 2008) is central to the discourse.

With MaaS framing in context, the availability of various mobility packages from several MO's can be argued to correlate with the *access* construct of motility, whilst servitization of the mobility options (offering them as a collective service) by means of a pay as you travel and accessing it through a digital platform correlates with both the *competence* and *appropriation* constructs of motility.

The delineation of motility affords analytical purchase and allows for model building and policy formulation. However, the assertion should equally be directed toward the spillover effects between the said constructs (Kaufmann

et al., 2004), as it is the interaction between these constructs that gives rise to motility, and subsequently enables and contains mobility, and in so doing, well-being (Gudmundsson, 2005). For example, the option of choice amongst available mobility resources allows for autonomy, and the development of the necessary skill set to utilize the mobility resources speaks to the environmental mastery and personal growth correlates of eudaimonic well-being. This is evident in the work of Axhausen and Gärling (1992) as they show the relationship between travel options and activity engagements is such that a change in travel options can either impede or enable activity engagement.

Lemma 5 *The interaction and synergy between Motility's access, competence and appropriation constructs can either enable or constrain mobility (Gudmundsson, 2005).*

7. Conclusion

In this paper *Reflexive Mobilities* were highlighted as those mobilities which are worth sustaining. MaaS has been identified, in section 4, as a solution concept to the many pain points currently experienced in the transport industry. Furthermore, the idea of a customizable transport collective, in addition to the means of access to this collective, as to compete with the mobility gains of solely relying on the private car, presents itself as a reflexive mobility type.
Given the argument in section 6.1, where greater sustainability is possible with greater transport system integration, both horizontally and vertically, MaaS is an obvious and perhaps a natural solution to the transport systems of the near future.
In addition to the capacity and potential to move, mobility also includes the embodiment of being mobile, thus the psychological value derived from being mobile becomes more prominent when bringing mobility into the discourse. Furthermore, the servitisation of mobility would thus have to account for this embodied experience, which would have an effect on how we account for the disutilities in travel. Subsequently, section 6.2 proffers a more conclusive account for well-being, which includes both hedonic and eudaimonic well-being philosophies. In this regard, the scope would thus need to be expanded beyond utilitarian heuristics, which stem primarily hedonic philosophies, when evaluating the value of mobility and subsequent MaaS schemes. From this perspective, MaaS advocates for mobility to be equally regarded as a standalone activity.

From this paper, the following items of note are highlighted:

- **Lemma 1** *Mobilities worth sustaining are reflexive and thus cognizant of their own inherent ambivalences and can be teased apart by notions of reflexivity, contingency and ambiguity.*
- **Lemma 2** *MaaS is a reflexive response to the concerns of the cultural patrimony of an autocratic transportation system.*
- **Lemma 3** *The normative or oughtness of eudaimonic well-being when appraising MaaS schemes and servitised mobility, given the lopsided representation of hedonic versus eudaimonic well-being in utilitarian economic methods for determining the value of travel (De Vos et al., 2013).*
- **Lemma 4** *Although individuals do not engage in cognitive processes of fully evaluating their well-being when engaged in routine activities, it is postulated that the evaluation of one's well-being does perpetuate, however, in a psychological well-being framing, with regards to positive psychological functioning, rooted in eudaimonic principles.*
- **Lemma 5** *The interaction and synergy between Motility's access, competence and appropriation constructs can either enable or constrain mobility (Gudmundsson, 2005).*

In conclusion, by mere rumination of utility theory's premise, where individuals seek to maximize amongst finite options as to yield maximum benefit or utility, counterfeits the soundness of any forthcoming MaaS modelling or evaluation, which claims any grounds of sustainability, but neglect the psychological well-being effect of the said system on the user, and perhaps paradoxical (Dar-Nimrod et al., 2009). Compared to satisficers, maximizers are seldom satisfied with their choice and prefer to seek other options at any cost (Lai, 2011). It has been shown that maximization has a negative correlation with positive psychological well-being (Roets et al., 2012; Schwartz et al. 2002). If one is to holistically account for the economic, environmental and social triad of the sustainability discourse,

should one not extend the effect of travel well-being derived from both hedonic and eudaimonic principles, to fall in line with the growing imperative of sustainable transport measures?

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