GLOBAL INNOVATION DESIGN

DIAGRAMING PRACTISE

RCA

FERNANDO GALDON

PhD

DESIGNING TRUST

EVOLVING MODELS AND FRAMEWORKS TOWARDS PROSPECTIVE DESIGN FUTURES IN HIGHLY AUTOMATED SYSTEMS

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A thesis submitted in partial fulfilment of the requirements of the Royal College of Art
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Examined by
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PhD

INTRODUCTION

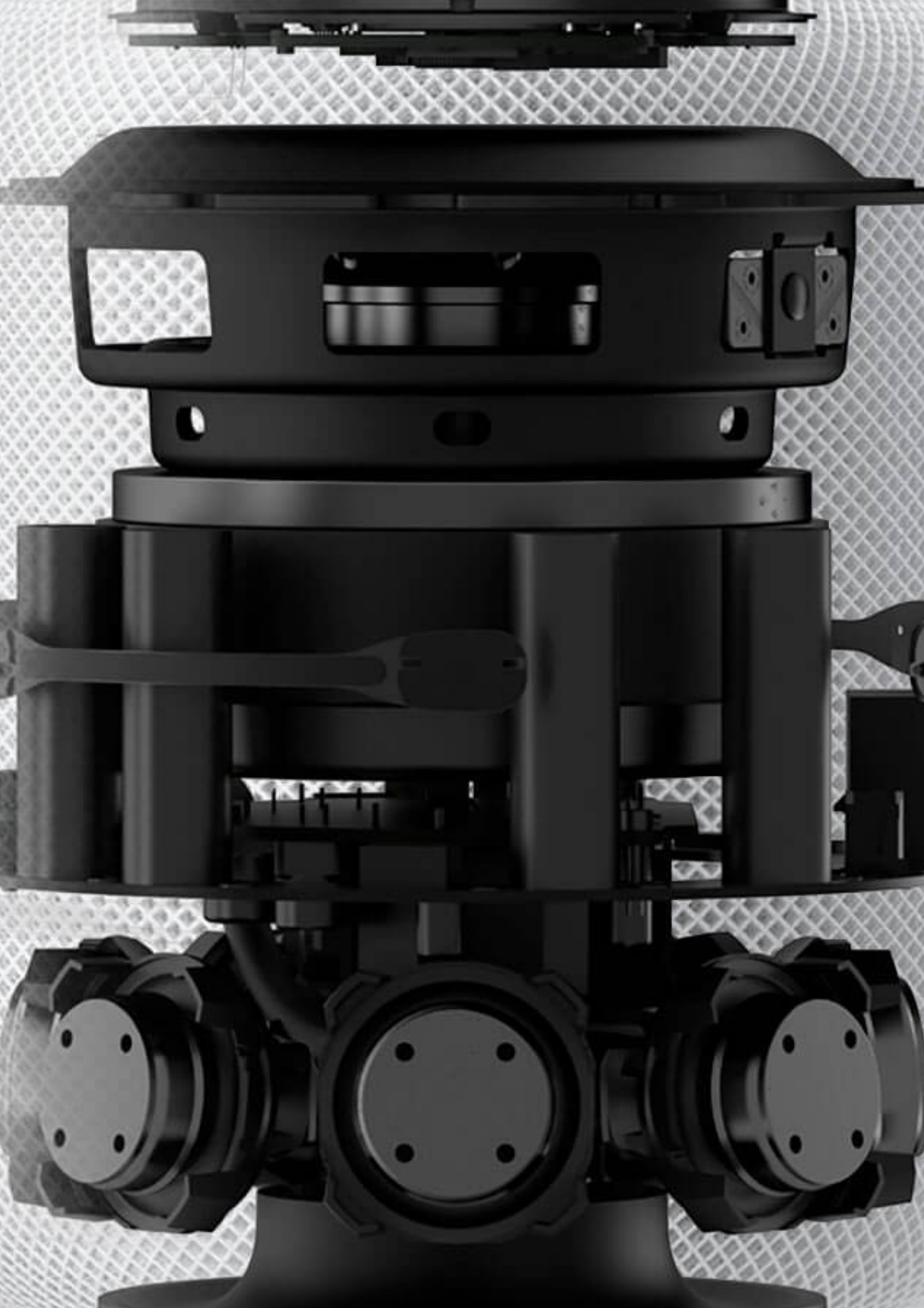
In this thesis, the author proposes Prospective design as a future-led mixed-methodology to mitigate unintended consequences. This framework combines systems analysis with extrapolations and constructivist perspectives to reconcile confronted models of designing futures in the context of Highly Automated Systems.

It does so by conducting a case on virtual assistants. Although virtual assistants are still in their infancy, they are expected to dominate digital interactions in the coming years. Investigating the prospective developments of this type of interaction device reveals the particular challenges of highly automated interactions for scholarly research. In this context, the intersection between the critical issues of automation and accountability acts as a focal point. Departing from authored multi-dimensional strategies and modes of calculation in ethical computing, this research examines how design decisions affect interactions, how these decisions may be made accessible in design frameworks and how prospective design strategies are better suited to address the rising concerns of these systems. This thesis contributes a new understanding of the implications of designing highly automated systems and provides practical and conceptual means for making this knowledge accessible and usable.

The developmental process consisted of a combination of archive research, surveys, experiments, case studies and co-design workshops. In this process, diagraming become a fundamental tool for practice. Diagrams have been traditionally used in computer science as schematic tools to explain the internal functioning of a system (circuit boards). This approach is translated to explain interactive elements of the system functioning in the context of AI - schematics of interaction -. This technique facilitated the understanding and communication of dematerialised systems. In this process, diagrams also become reflective tools. They helped me to structure knowledge in a manageable way to implement critical analysis via comparative or relational studies. As a synthetic tool, they represent a reduction of reality, but this reduction facilitated understanding. Furthermore, this tool was particularly helpful to facilitate cross-disciplinary enquiry, and this element allowed me to find relationships among disciplines and fields.

PhD

CONTENT



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1

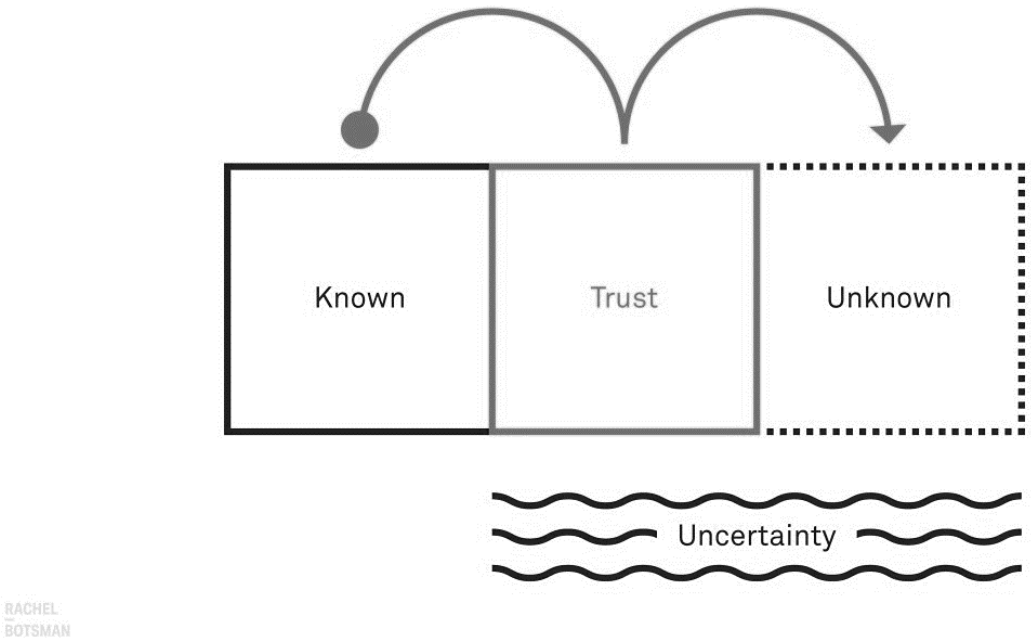
CHAPTER

DIAGRAMING

TRUST

1.1 WHAT IS TRUST?

According to trust expert Rachel Botsman, trust is "trust is a confident relationship with the unknown" (Botsman, 2018). She builds her definition from social psychologist Morton Deutsch, who wrote in his seminal 1973 book The Resolution of Conflict: "Trust involves the delicate juxtaposition of people's loftiest hopes and aspirations with their deepest worries and darkest fears." (Botsman, 2018). Nevertheless, is this definition correct?



Trust. Rachel Botsman. 2017

According to the Handbook of Research Methods on Trust, trust is a multi-faceted phenomenon difficult to underpin (Lyon, 2015). This concept cannot be easily observed or even defined. This topic can be traced back at least to work in the 1960s and 1970s with a range of influential exploratory pieces (such as Deutsch, 1973; Garfinkel, 1967; Rotter, 1967; Zand, 1972). Furthermore, In the 1980s and 1990s, research was implemented on conceptual aspects. It was followed by a wide range of empirical and experimental studies from the late 1990s to the present (see Bachmann and Zaheer, 2006; Möllering, 2006). Seppanen et al. (2007) presented an excess of 70 definitions of the concept of trust (see also Castaldo, 2007). Trust is a very elusive concept. It is placed in the middle of two entities interacting. It is multi-level. According to Blobaum, trust is referential to a system (media), an organisation (newspaper), a person (journalist) or a product (article) (Blobaum, 2016 pp.8-9). You can trust and distrust at the same time, one or more elements in the hierarchy. For instance, you can distrust the media, and the guardian, but can trust a specific journalist and the content he creates for the newspaper. You can trust it today and distrust the same thing tomorrow. Trust is constituted in an act in which the trustor makes himself or herself

vulnerable to the trustee. One one of the most cited definitions of trust in the organisational science literature is Mayer at al. They define trust as “The willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party. (Mayer et al., 1995, p. 712)

This point is capital and a missing point in Botsman definition. Trust is very fragile and can be easily broken. Preliminary knowledge, past experiences, personality and personal situation, affect trust from a trustee perspective. Positives experiences reinforce trust. In this regard, the work of Giddens defines trust as “confidence in the reliability of a person or system, regarding a given set of outcomes or events, where that confidence expresses a faith in the probity or love of another, or in the correctness of abstract principles (technical knowledge).” (Giddens on Lane and Bachman, 1998, pp.35). It is the “Belief in someone or something, which is nurtured through positive experiences”. Media, K. (2016).

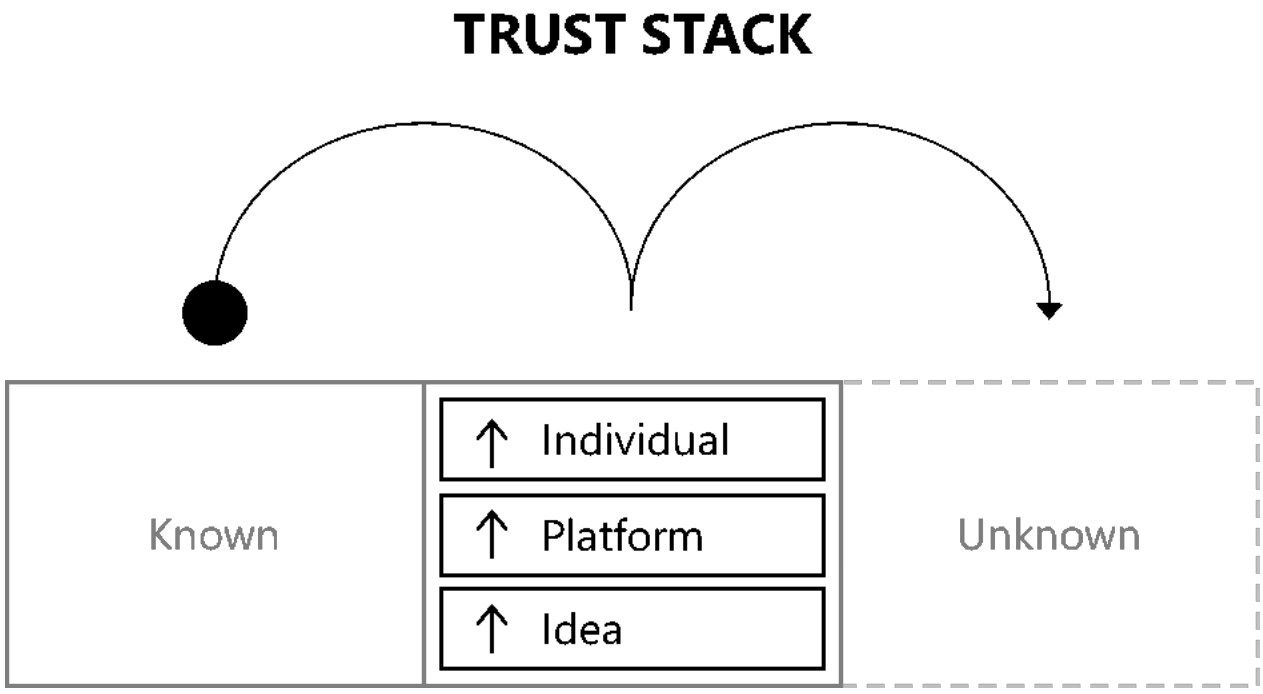
In the technological context we are living, evangelists make their promises trough technologies. In this scenario, Botsman states that “Technology is only the means” (Botsman, 2018). However, Sophia Jasanoff, a Harvard professor, presents in her seminal book, the ethics of invention, quite a contrary approach. She builds from examples of animals’ behaviour to demonstrate that technology as an end to satisfy needs is not even a distinctively human action (Jasanoff, 2016. P. 2--)

For the author, “Technology, in short, is not merely about achieving ends that we already foresee but an open the door to an uncharted, often uncertain future where current social understandings and practices may be fundamentally transformed. Uncertainty, moreover, can deter as much as it entices. The bright gleams of promise that invite human societies to invest in technology march hand in hand with darker misgivings about what could go wrong if the promises fail and the unexpected breakdown happens on a grand scale.” (Jasanoff, 2016. P. 214). And concludes, “Neither practicality nor predictability captures the evolving relations between human beings and their technologies. Human technological wizardry extends far beyond performances of repetitious tasks to serve simple, predetermined purposes. Artistry, imagination, and the desire to probe the unknown have long dominated the will to make and use technology” (Jasanoff, 2016. P., 212). Therefore, I will redefine trust as confidence in somebody’s promise to navigate the unknown through design. It is structured in four steps; Fear is created by uncertainty. Trust is created when somebody promises you how to navigate (which leads to hope). A promise is enabled by design. And trust is reinforced when the promise is delivered.

Rachel is right in pointing to the unknown but misses the void created by this uncertainty, which is always occupied by somebody through the delivery of a promise to navigate this terrain. What is weird is that she makes references to it. For instance, on page 124, where she states that “we need to think of trust as trusting someone to do something”. (Botsman, 2017. P.124).

1.2 HOW DO WE STRUCTURE TRUST?

As we have seen earlier, trust is multi-level. Botsman presents a trust stack as a model to understand how trust works in the digital domain. She fills the trust void with three levels; an idea, a platform and an individual. These elements are the foundation for a user to take a trust leap.



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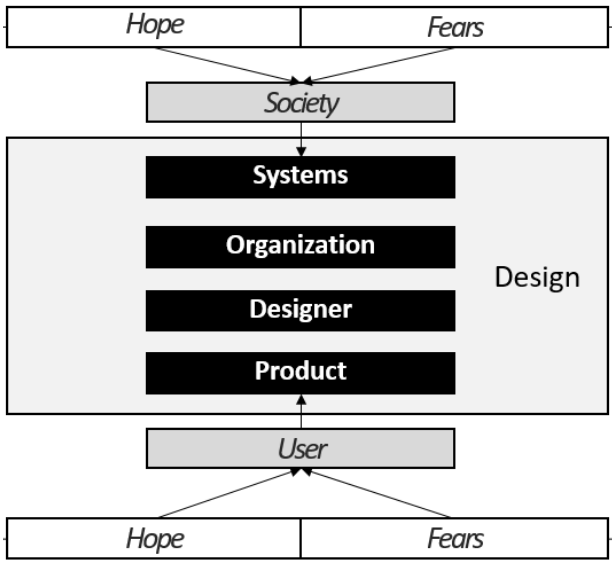
However, according to Blobaum, trust is referential to a system (media), an organization (newspaper), a person (journalist) or a product (article) (Blobaum, 2016 pp.8-9). For instance, system (media), an organization (newspaper), a person (journalist) or a product (article). Or system (e-commerce), an organization (Amazon), a person (search algorithm) or a product (book). This approach differs from Botsman with the integration of the system as a level to consider. Again, she makes references on page 188, but do not integrate these elements in the stack system presented. Besides, and building from the definition provided earlier, the dynamics and actions of the ecosystem are also missing. We need to integrate the drivers; fear and hope. And the enabler; design.



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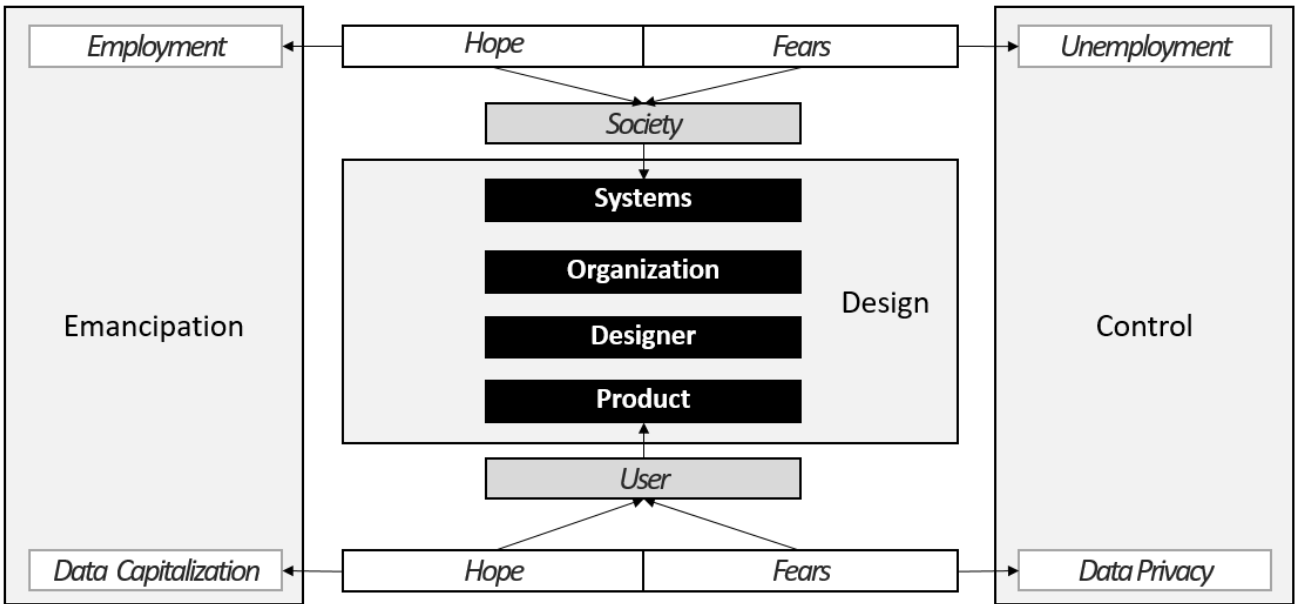
However, which are the driver? Sir Martin Sorrell, CEO of WPP, the most significant advertising and public relations company in the world, stated at the world economic forum, that the most prominent drivers rising fear are unemployment and privacy. These results were based on a range of surveys conducted by his company. Due to the contextual nature of these drivers, likely changing over time, in this area, further research is needed to identify the essential surveys to establish a cross-referenced output. By playing the opposite, we could build a model for hope where fears of unemployment and data privacy could be transformed into employment and data capitalisation. Thus, leading to freedom and emancipation, instead of precariat and control.



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Botsman structure trust around the dimensions of competence, reliability and honesty. Is this true? In this area, due to a lack of clear distinction amongst the factors that constitute trust, trust itself, and the outcomes of trust, its research has been complicated. The main model from which all contemporary research underpins is Mayer's dimensional model. Who after an extensive revision on the topic, proposed a generic typology on the subject of enquiry consisting fundamentally on three dimensions; ability, benevolence, and integrity. (Mayer, Davis & Schoorman, 1995)

They are conceptually distinct since they address different elements of cognitive and affective abstraction of trust. However, collectively, they represent a comprehensive multi-dimensional space for trust. Their multi-dimensional model of trust is one of the most widely accepted (Rousseau, Sitkin, Burt & Camerer, 1998; Wasti et al., 2007). In Mayer's model, three dimensions underpin the process of trust.

Ability - This area refers to "the trustor's perception of trustee's competencies and knowledge salient to the expected behaviour". They can be based on "prior (first-hand or second-hand) experience or institutional endorsements". (Bhattacherjee, 2014)

Integrity – this area refers to the perception a trustor will follow a set of principles or rules.

Benevolence – this area refers to the intentionality and behaviour of the trustee. From who is believed to "intend doing good to the trustor, beyond its own profit motives" (Bhattacherjee, 2014)

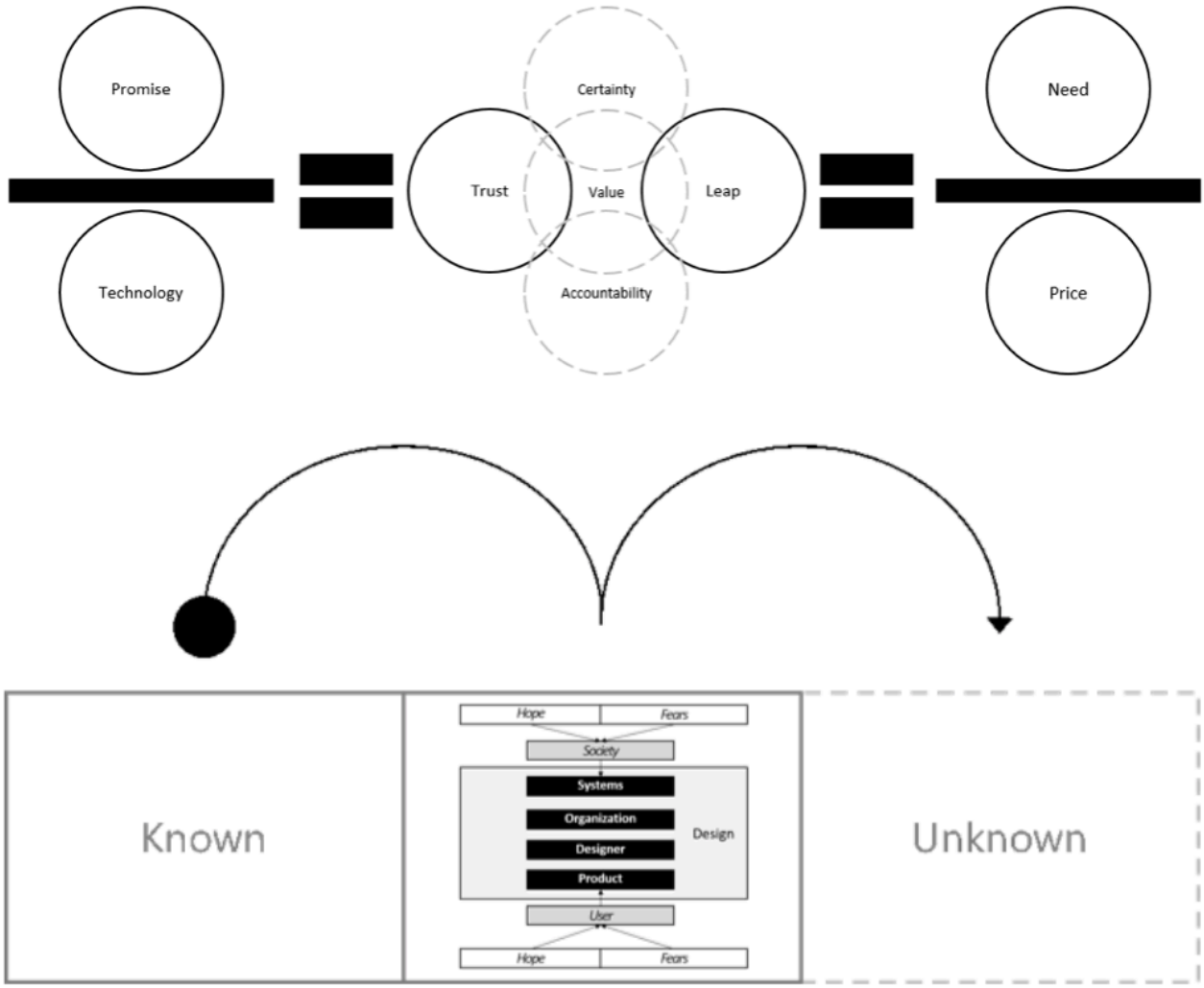
If we translate into Botsman model, we could pair ability with competence, integrity with reliability and honesty with benevolence. Therefore, positioning Botsman as correct.

Finally, Botsman presents value, accountability and certainty as to the main dimensions of trust.

From what we have seen, trust is confidence in somebody's promise to navigate the unknown. It is structured in four steps; Fear is created by uncertainty. Trust is created when somebody promises you how to navigate (which leads to hope). A promise is enabled by design. And trust is reinforced when the promise is delivered.

In this process, the key aspect is enabling a promise, which we do through design. This step is structured in four levels; systems, organisations, designers and products. The development of technology is affected by top-down dynamics coming from society and bottom-up dynamics coming from the individual. And two drivers; hope and fear.

A fundamental area is how and why we take a trust leap. In this context, certainty (reliability or integrity) value (competence or ability) and accountability (honesty or benevolence) play a fundamental role in the final decision. However, an increase in the need or competitiveness of price can overrule a reflective analysis and increase instinctual decisions.


Promise
Technology
Certainty
Trust
Value
Leap
Accountability
Need
Price
Known
Hope
Fears
Society
Systems
Organization
Designer
Product
Design
User
Hope
Fears
Unknown

Final model

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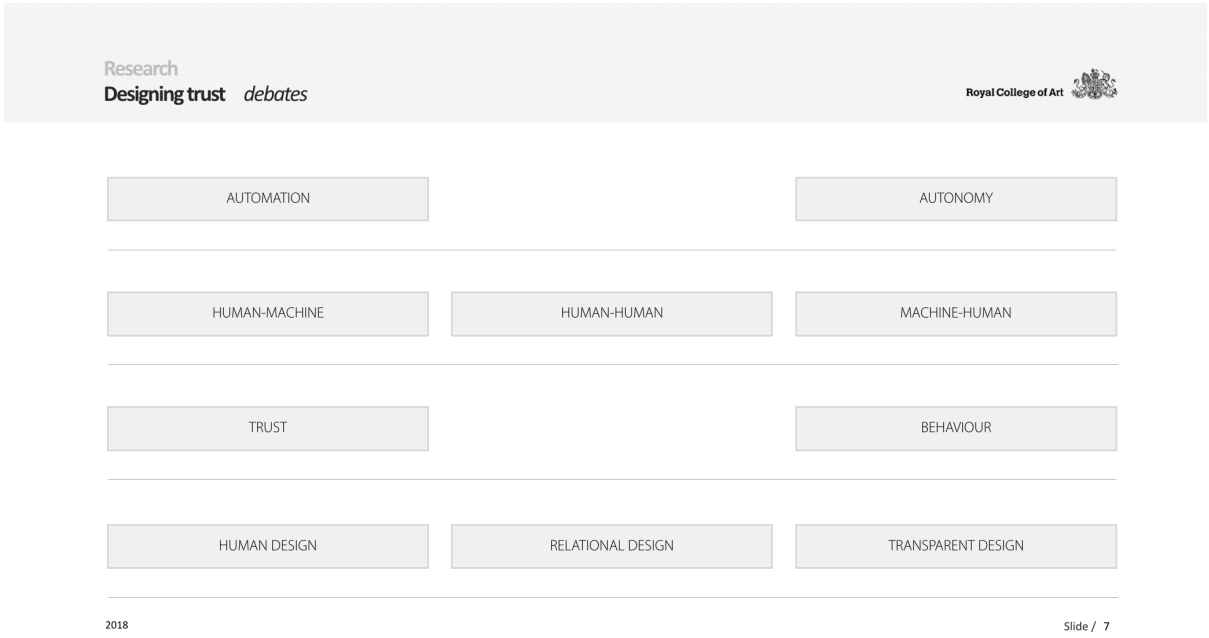
2

CHAPTER

DIAGRAMING

AUTOMATION



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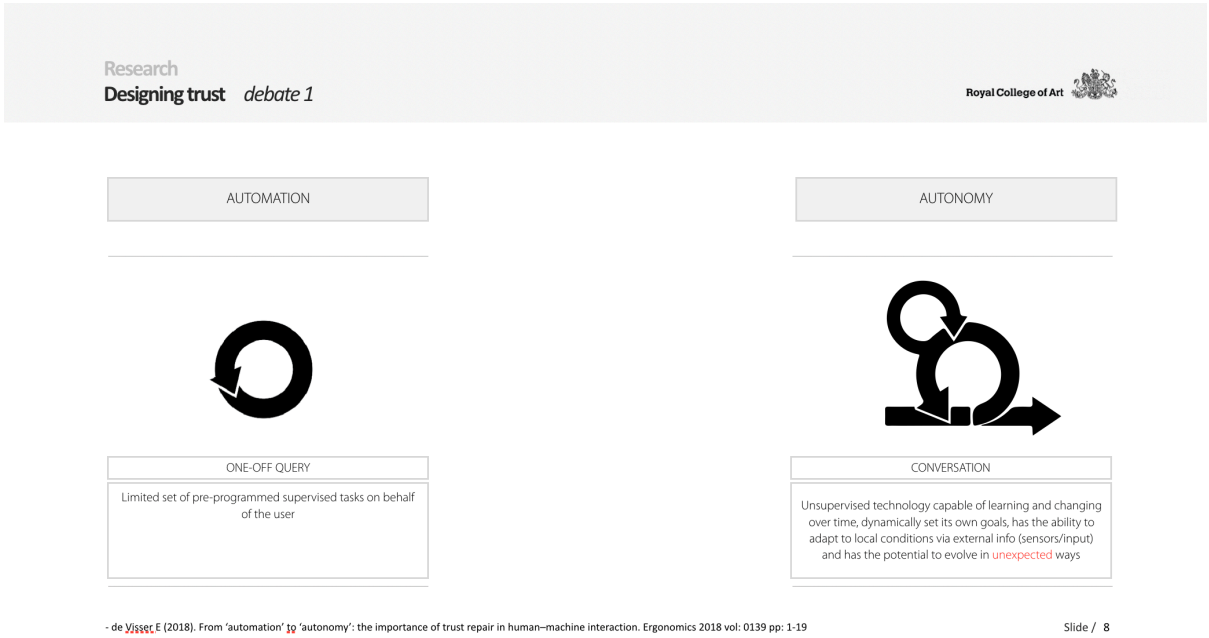

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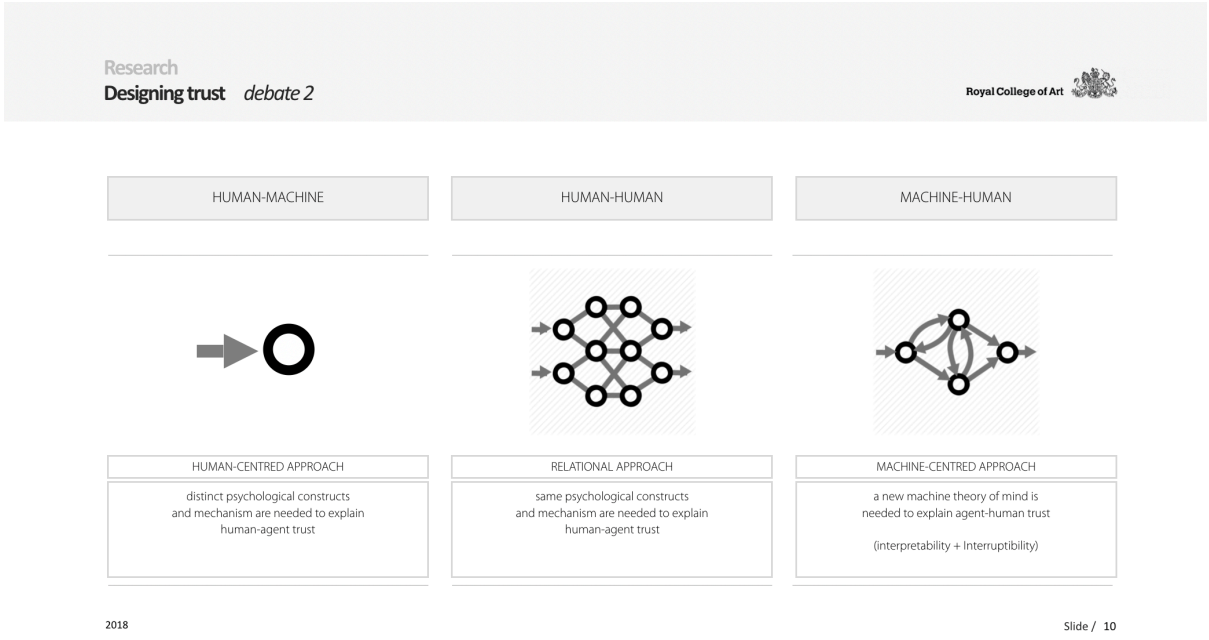

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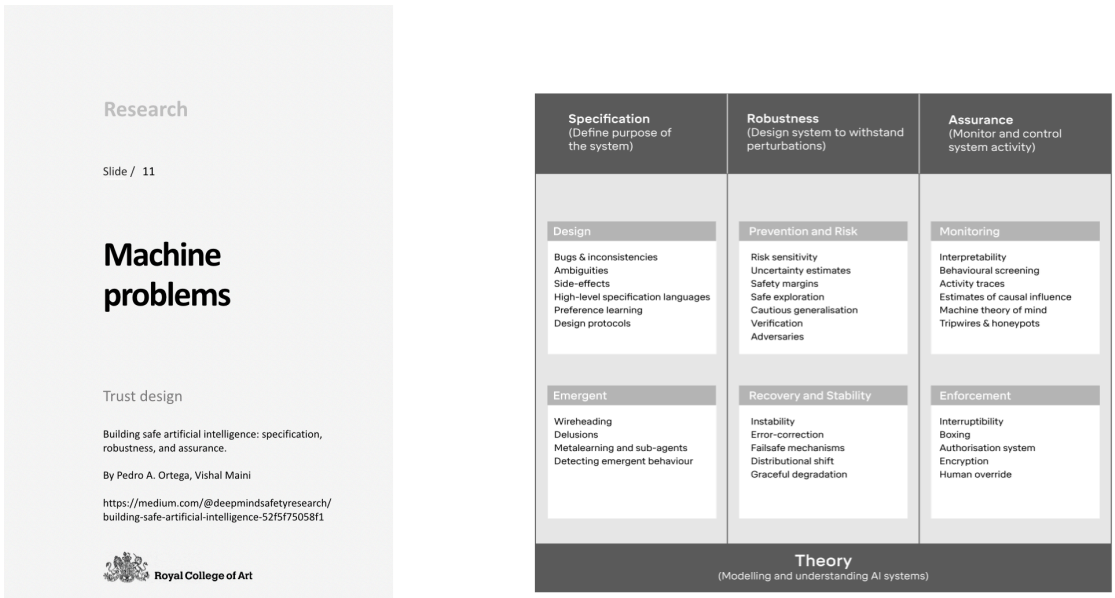

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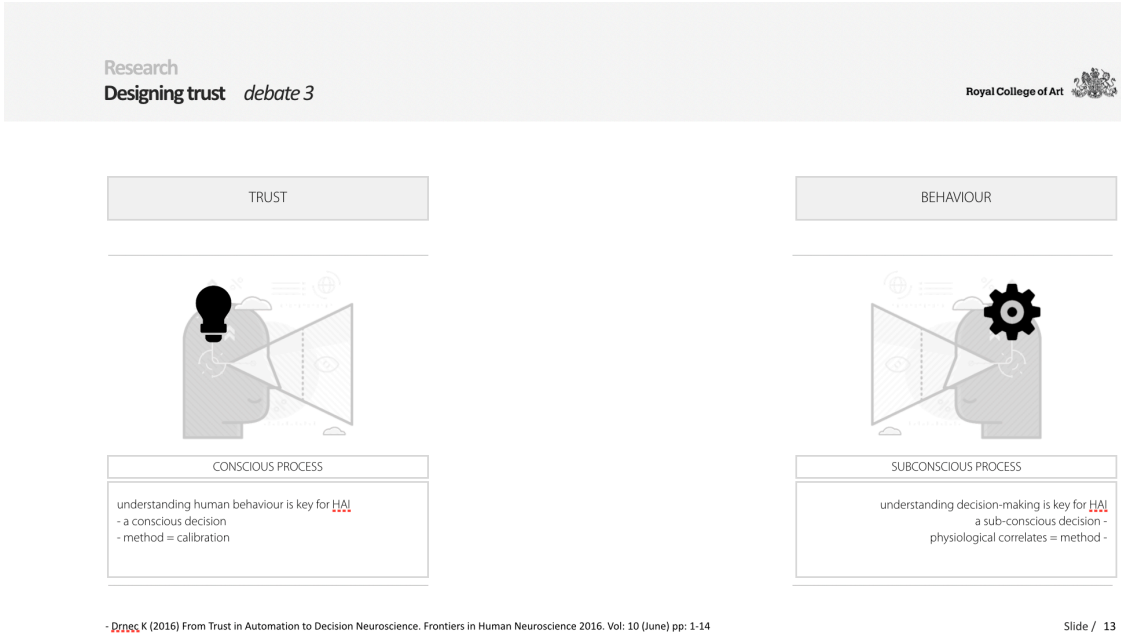

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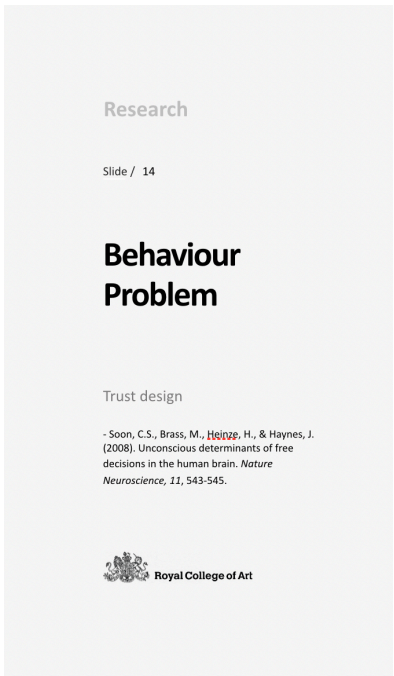

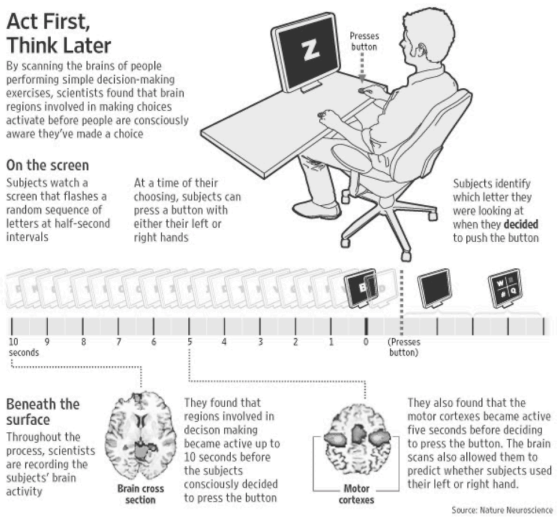

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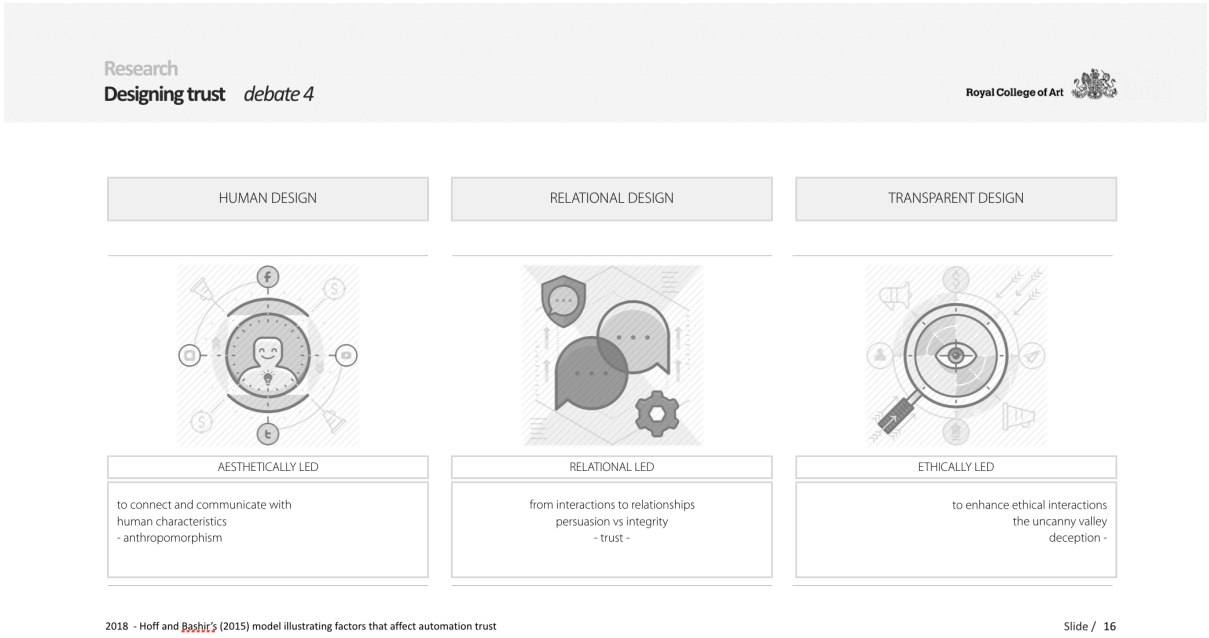

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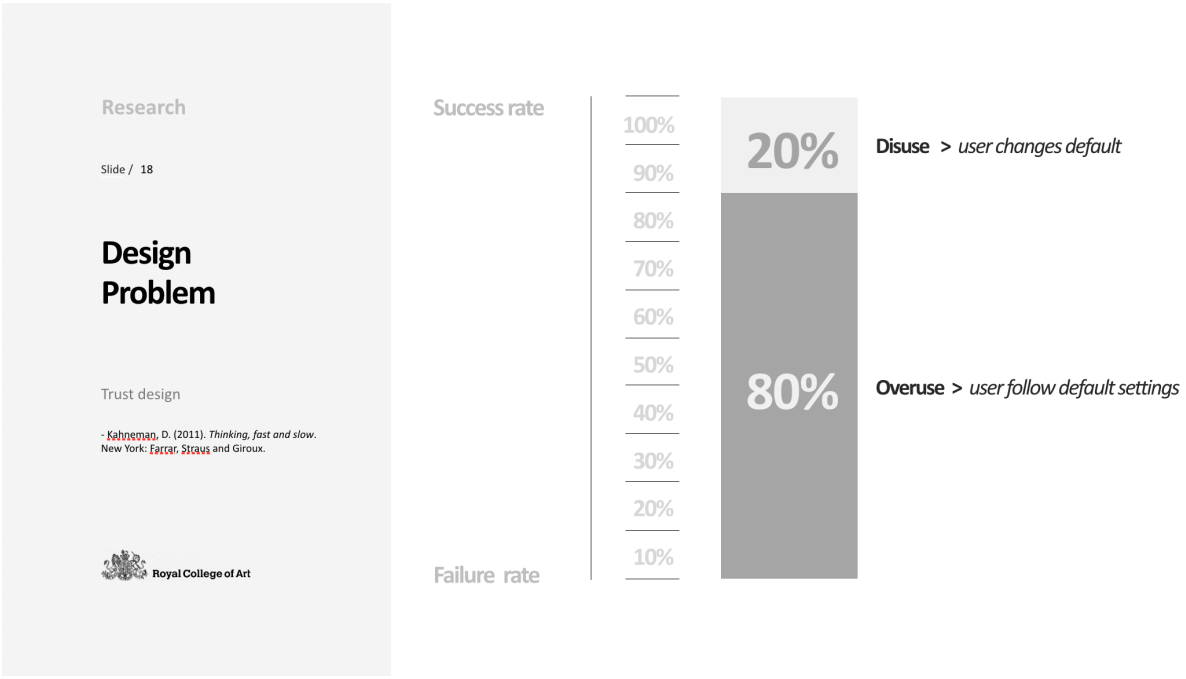

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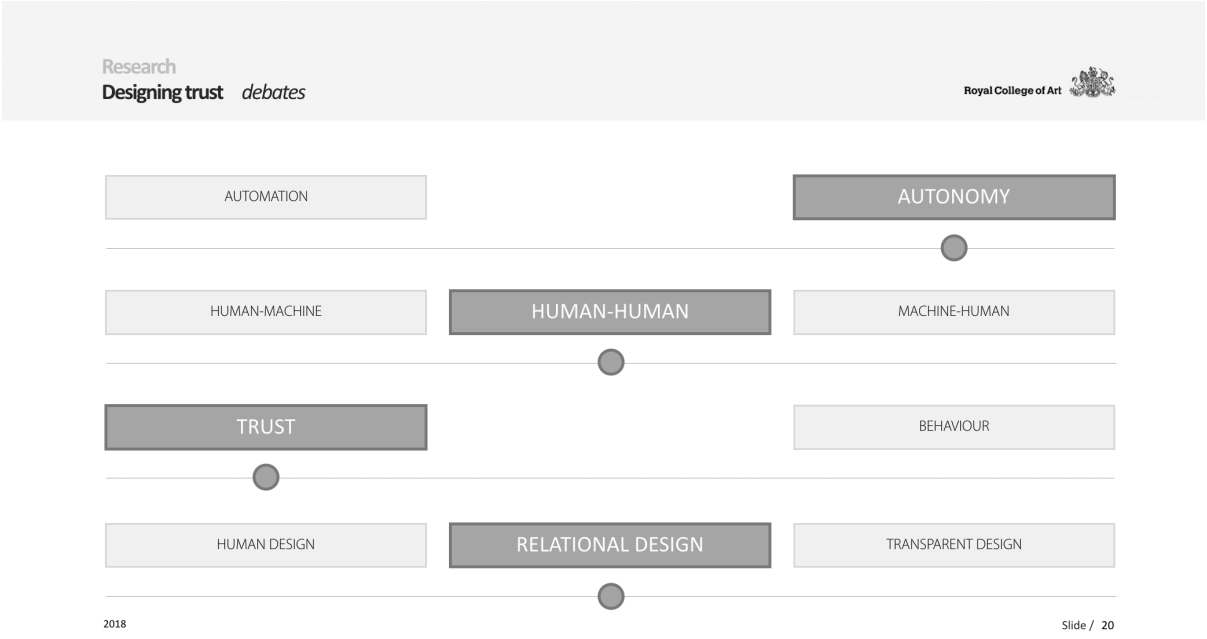

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ONE-OFF COMMAND INITIATED BY THE USER

Limited set of pre-programmed supervised tasks on behalf of the user

A CONVERSATION INITIATED BY THE SYSTEM

Technology designed to carry out a user's goals without supervision

capable of learning and changing over time, dynamically set its own goals, has the ability to adapt to local conditions via external info (sensors/input) and has the potential to evolve in unexpected ways

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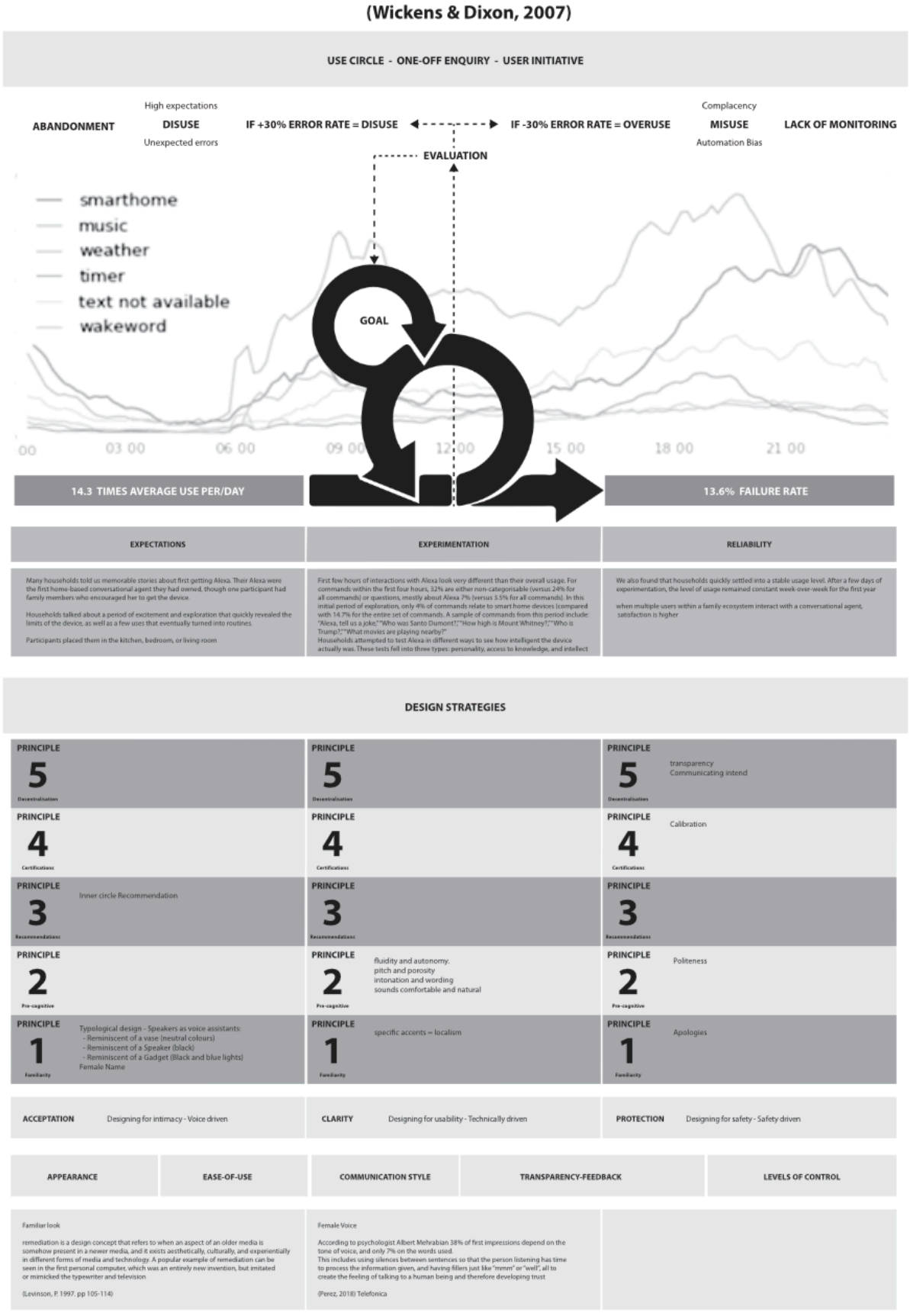

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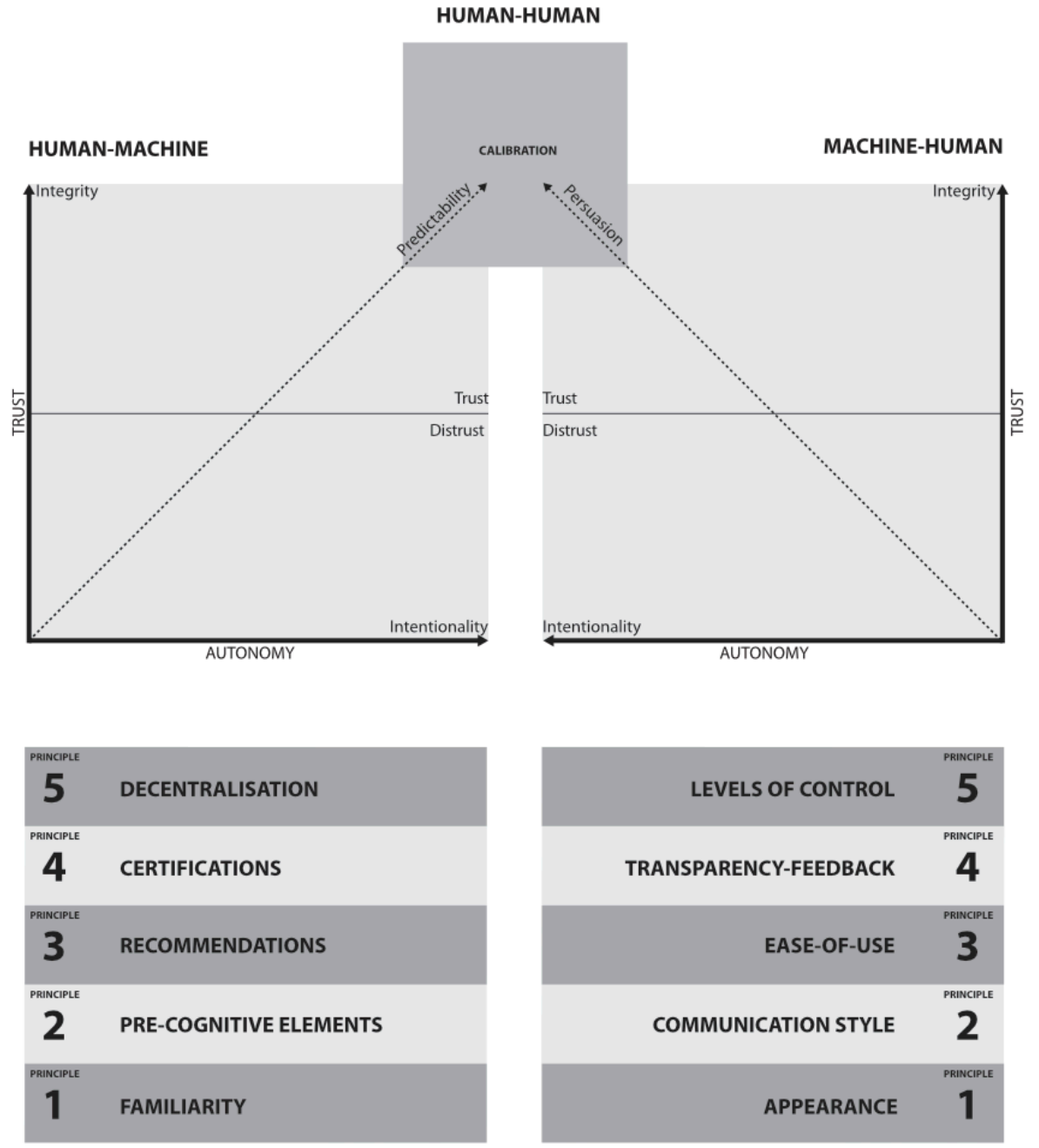

Hoff and Bashir's (2015) model illustrating factors that affect automation trust.

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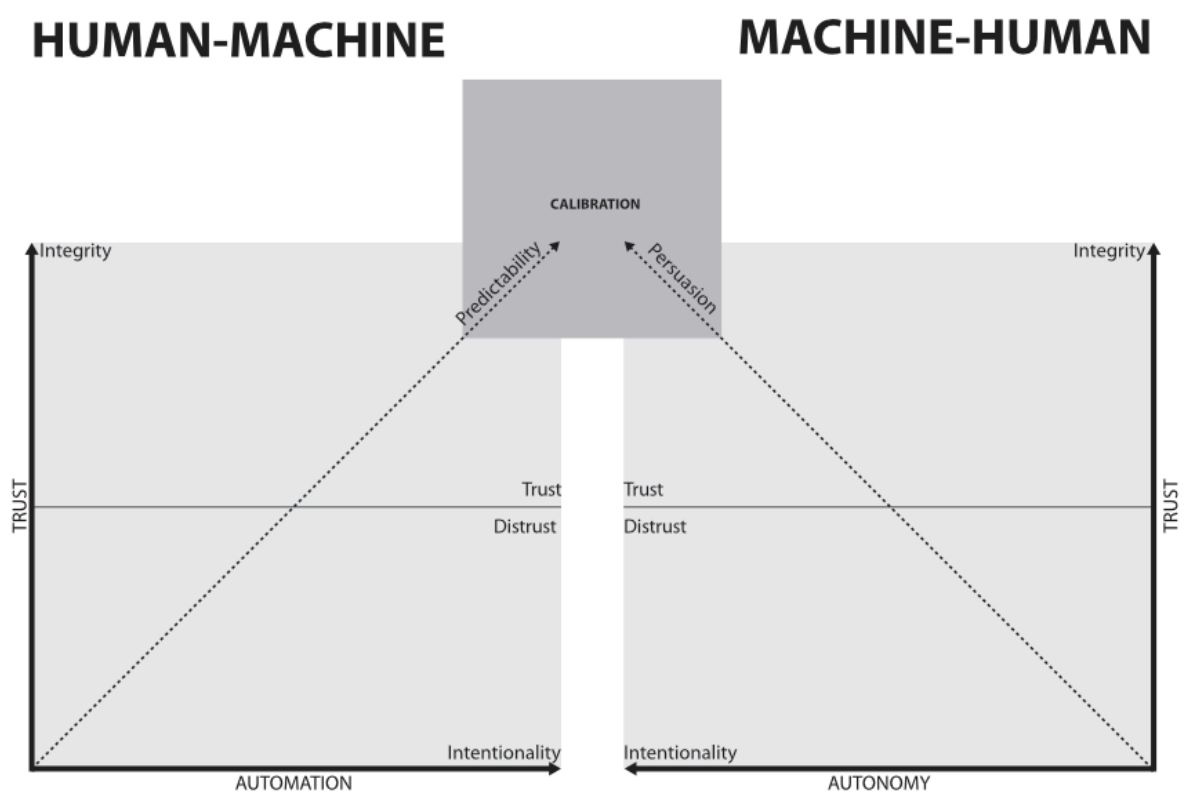

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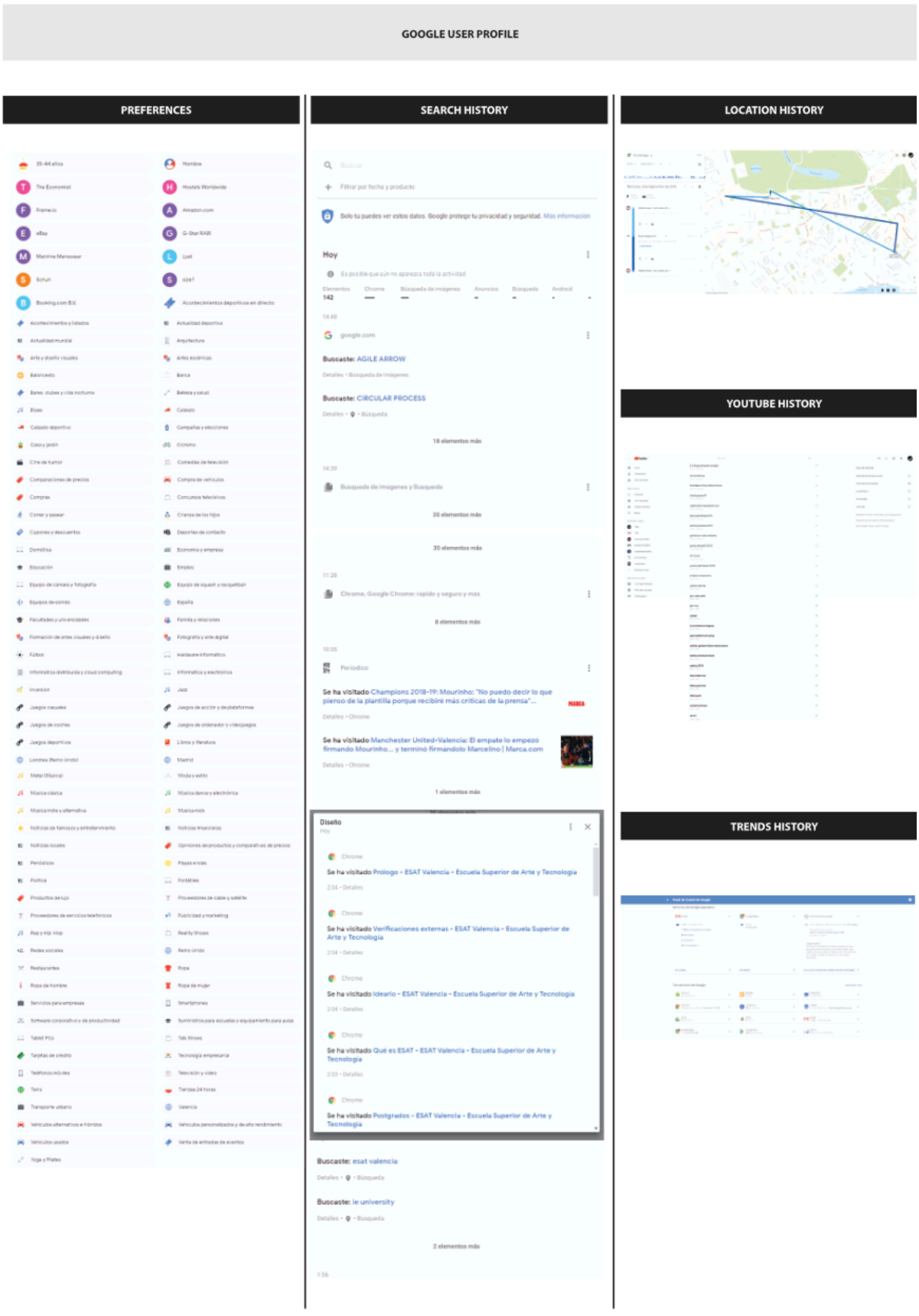

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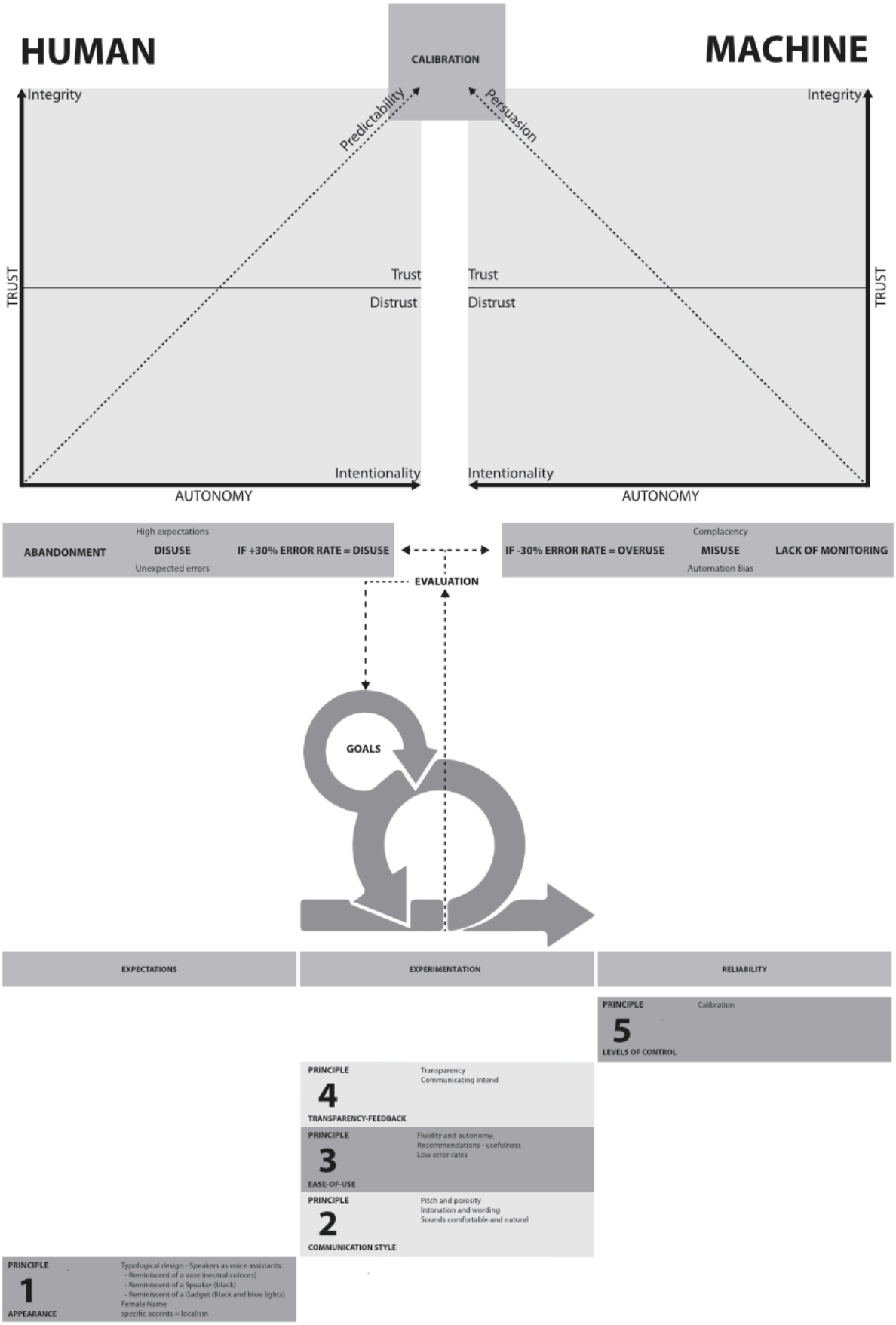

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LEVELS OF REPARATION

LEVEL 1	NO REPARATION
	The action performed by the VA causes no side effects
	Routinary activities without side effects
LEVEL 2	GENERIC APOLOGY
	The action performed by the VA causes minor discomfort
	A generic apology acknowledging the error
LEVEL 3	PERSONAL APOLOGY
	The action performed by the VA causes discomfort
	A personal apology acknowledging the error
LEVEL 4	PUBLIC APOLOGY
	The action performed by the VA causes offence
	A press release acknowledging the error
LEVEL 5	LOW COMPENSATION
	The action performed by the VA causes harm
	Legal action - Monetary compensation - Thousands
LEVEL 6	MIDDLE COMPENSATION
	The action performed by the VA causes injuries
	Legal action - Monetary compensation - Hundred of thousands
LEVEL 7	HIGH COMPENSATION
	The action performed by the VA causes death
	Legal action - Monetary compensation - Millions

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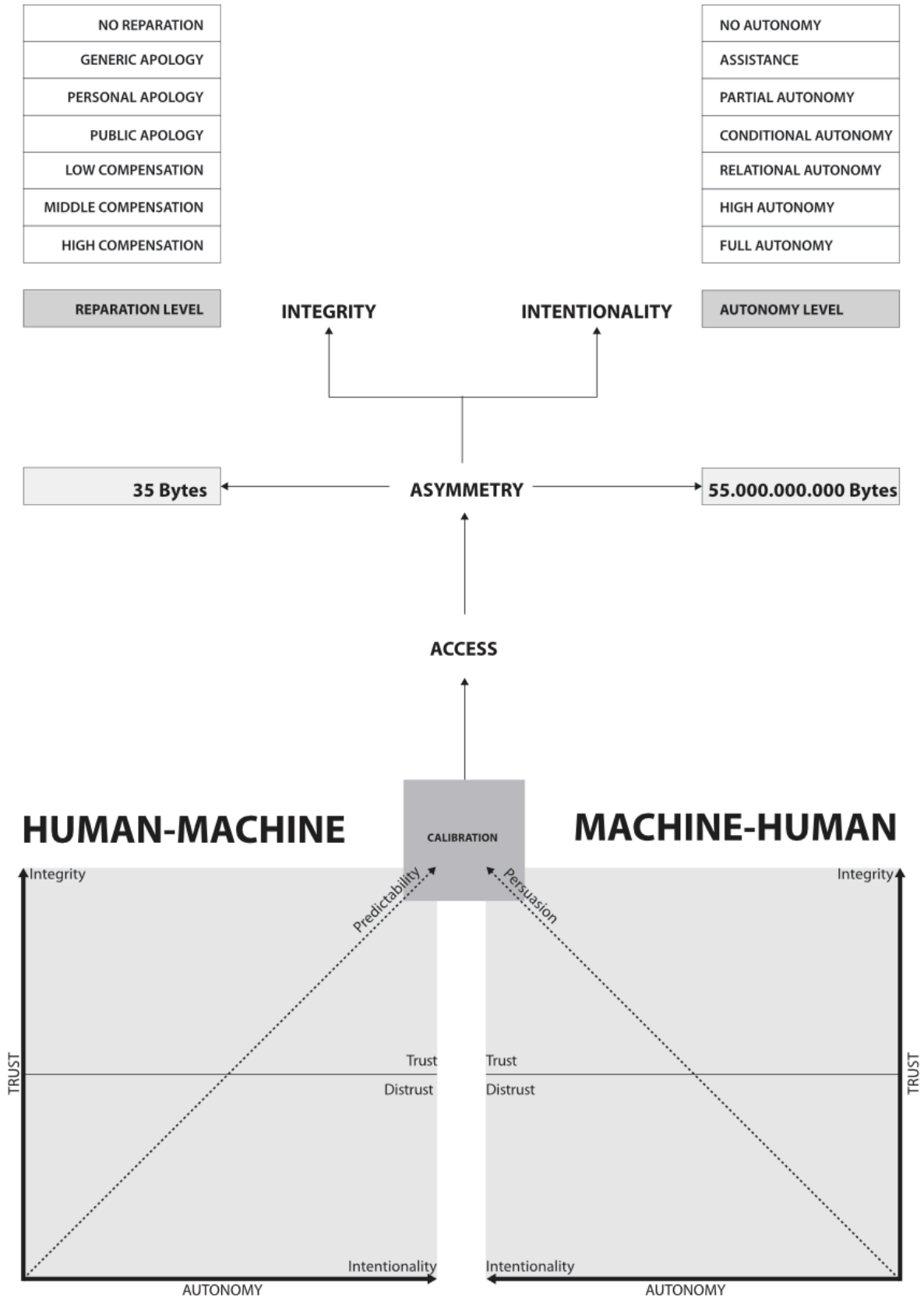

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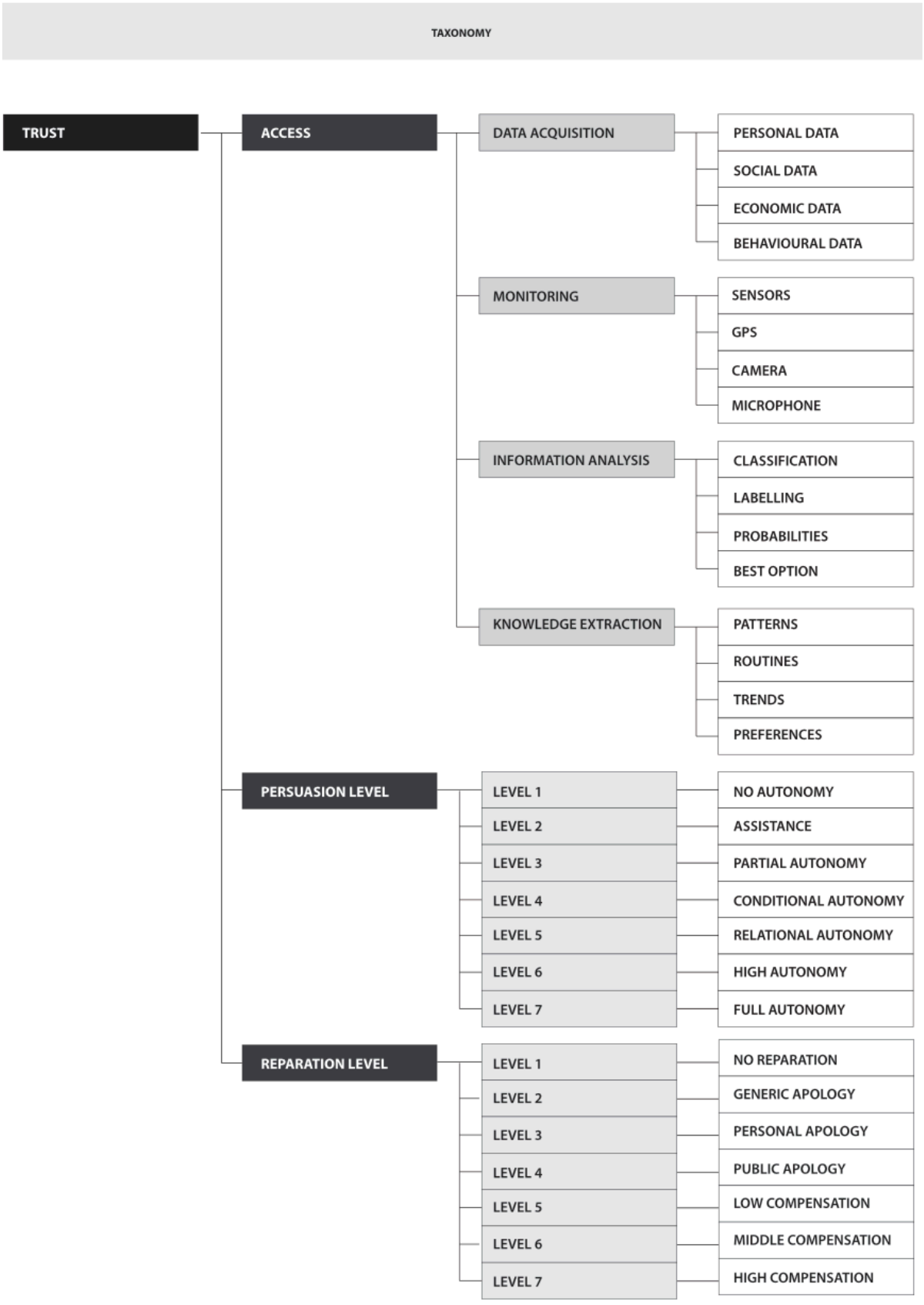

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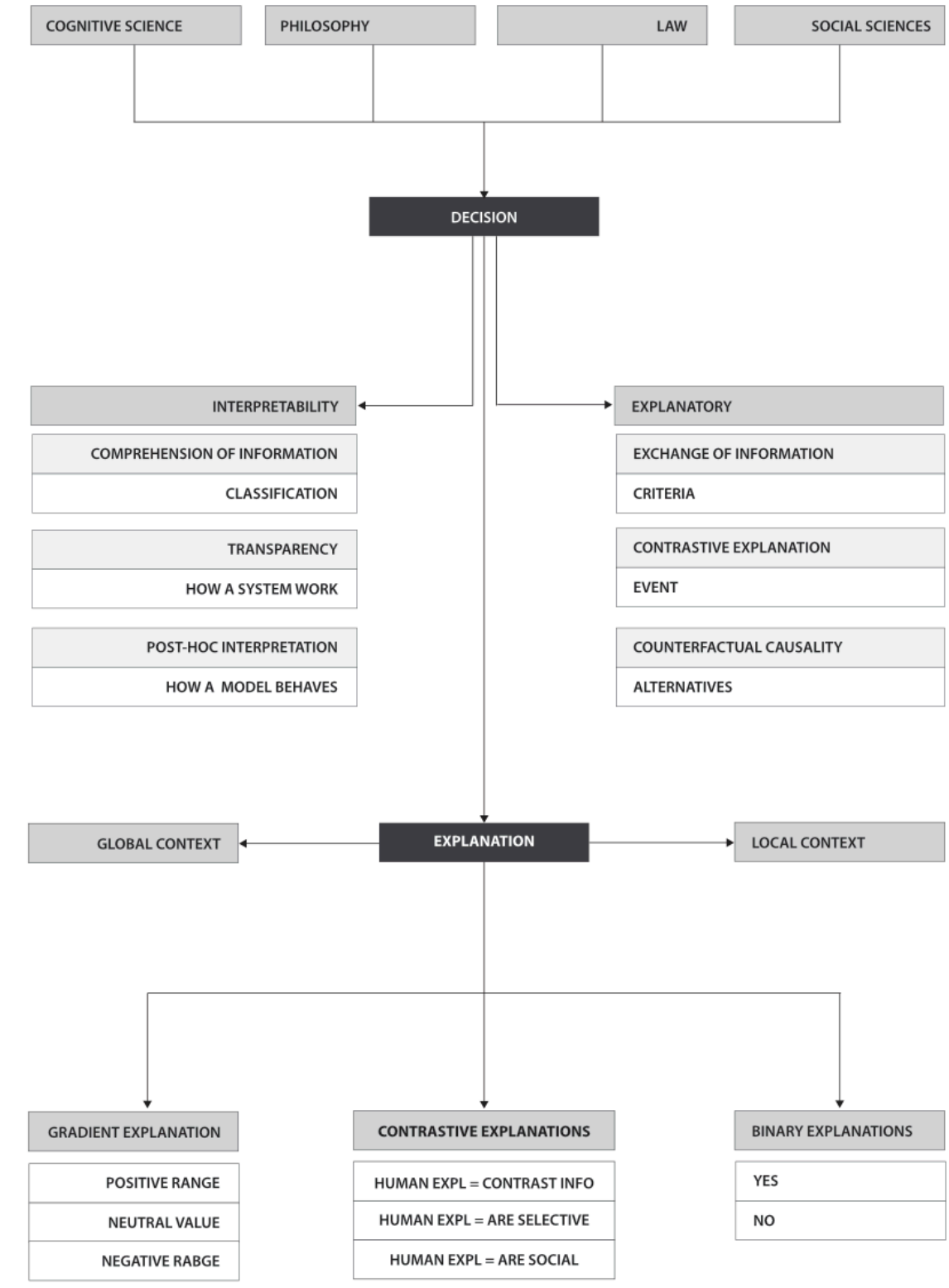

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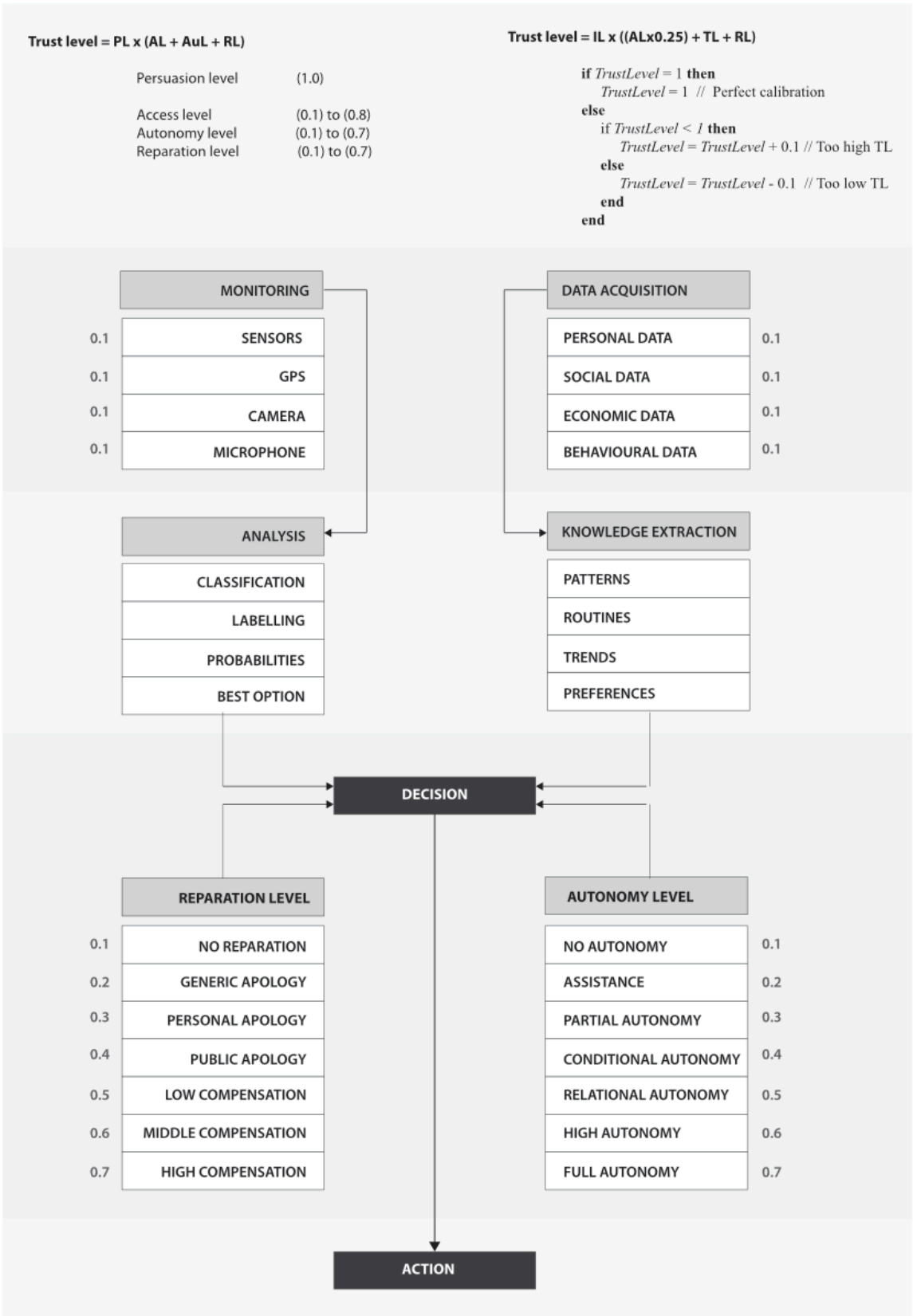

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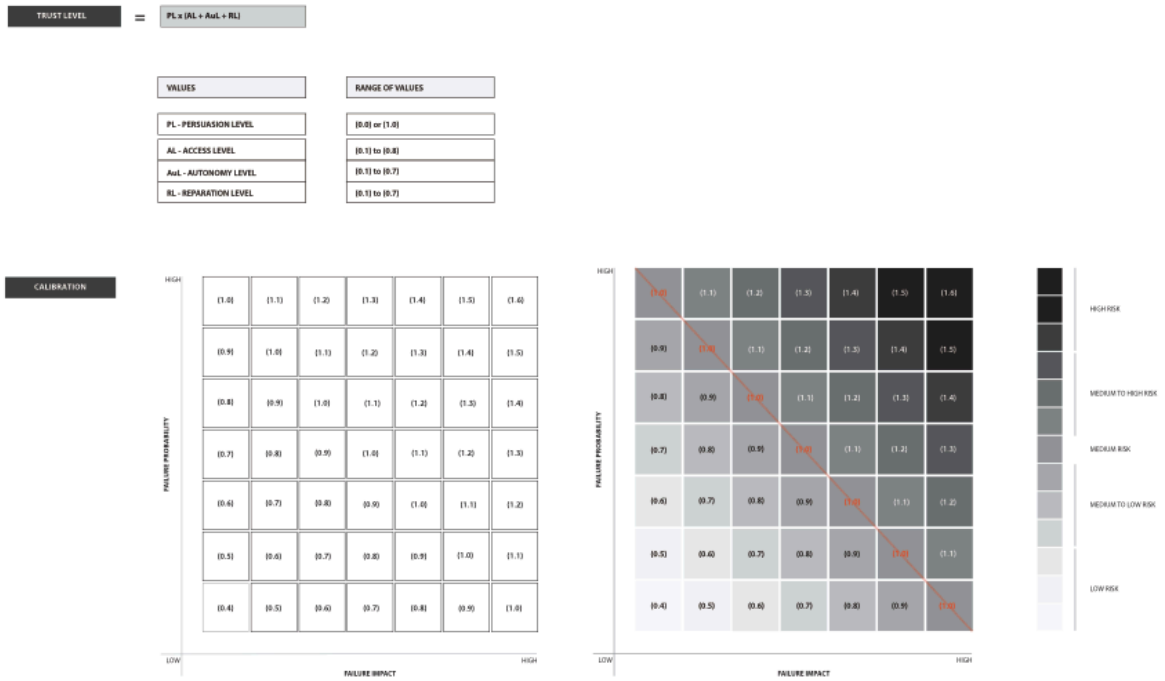

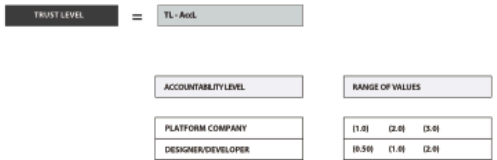

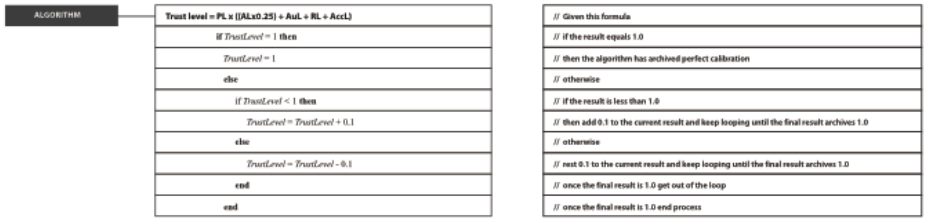

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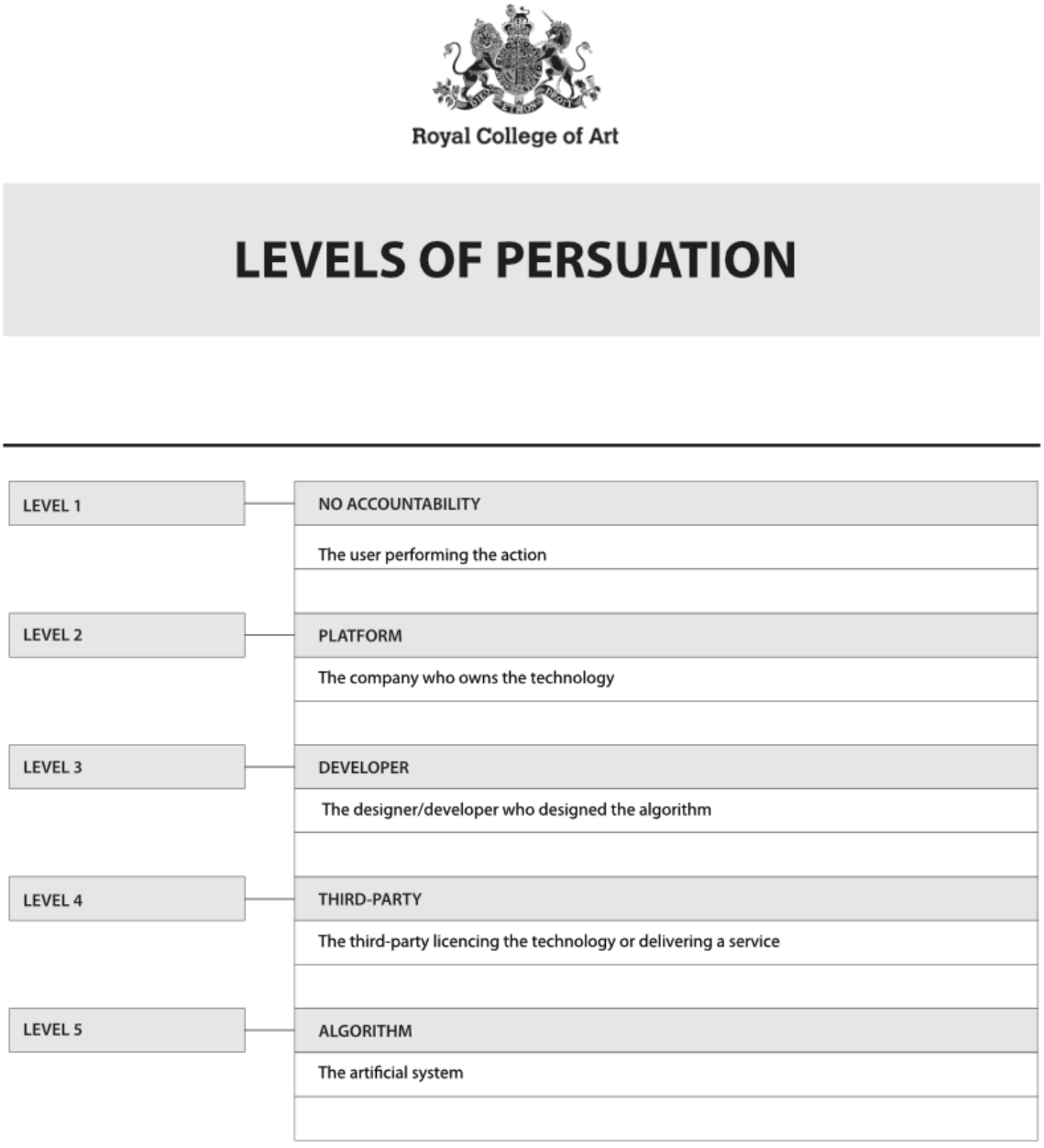

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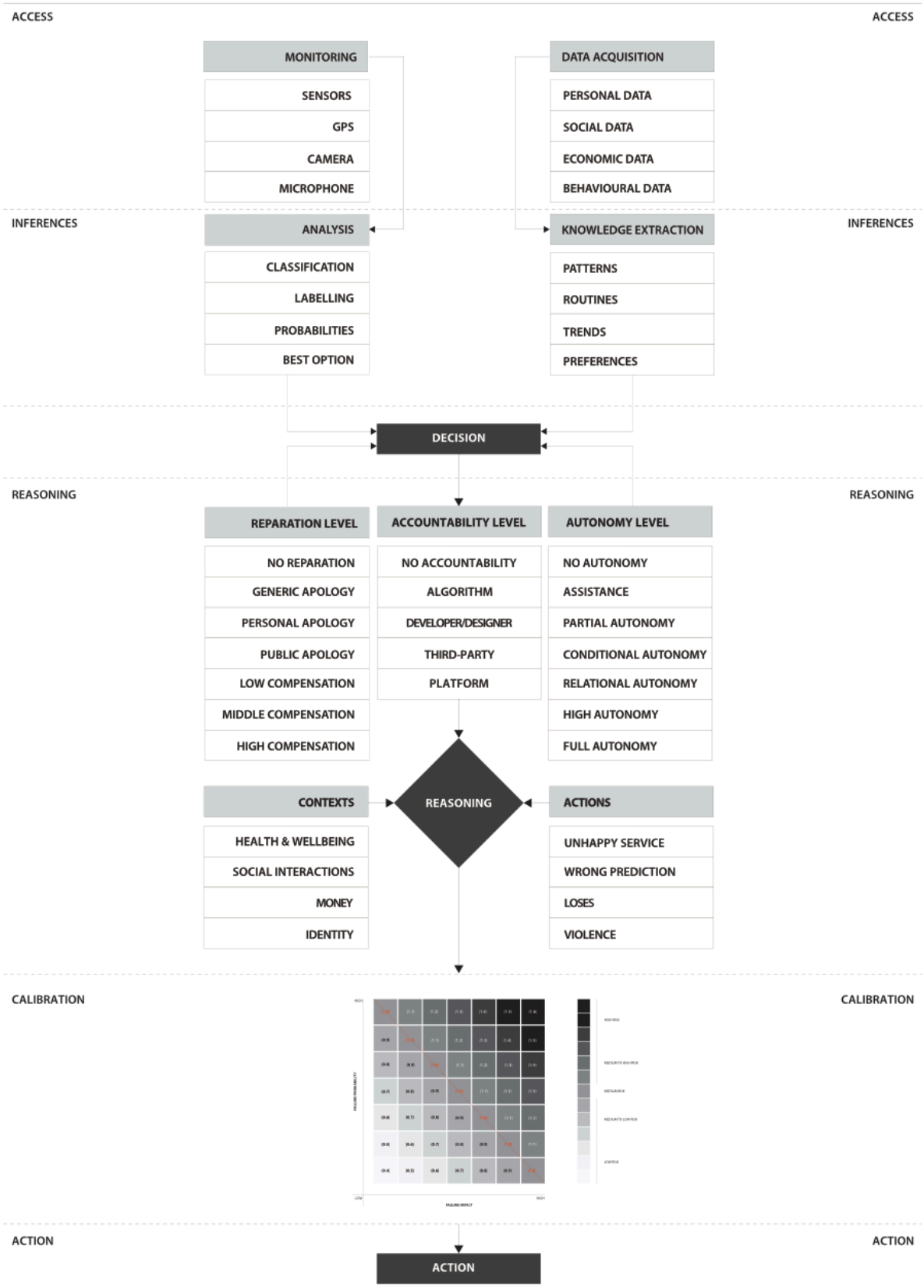

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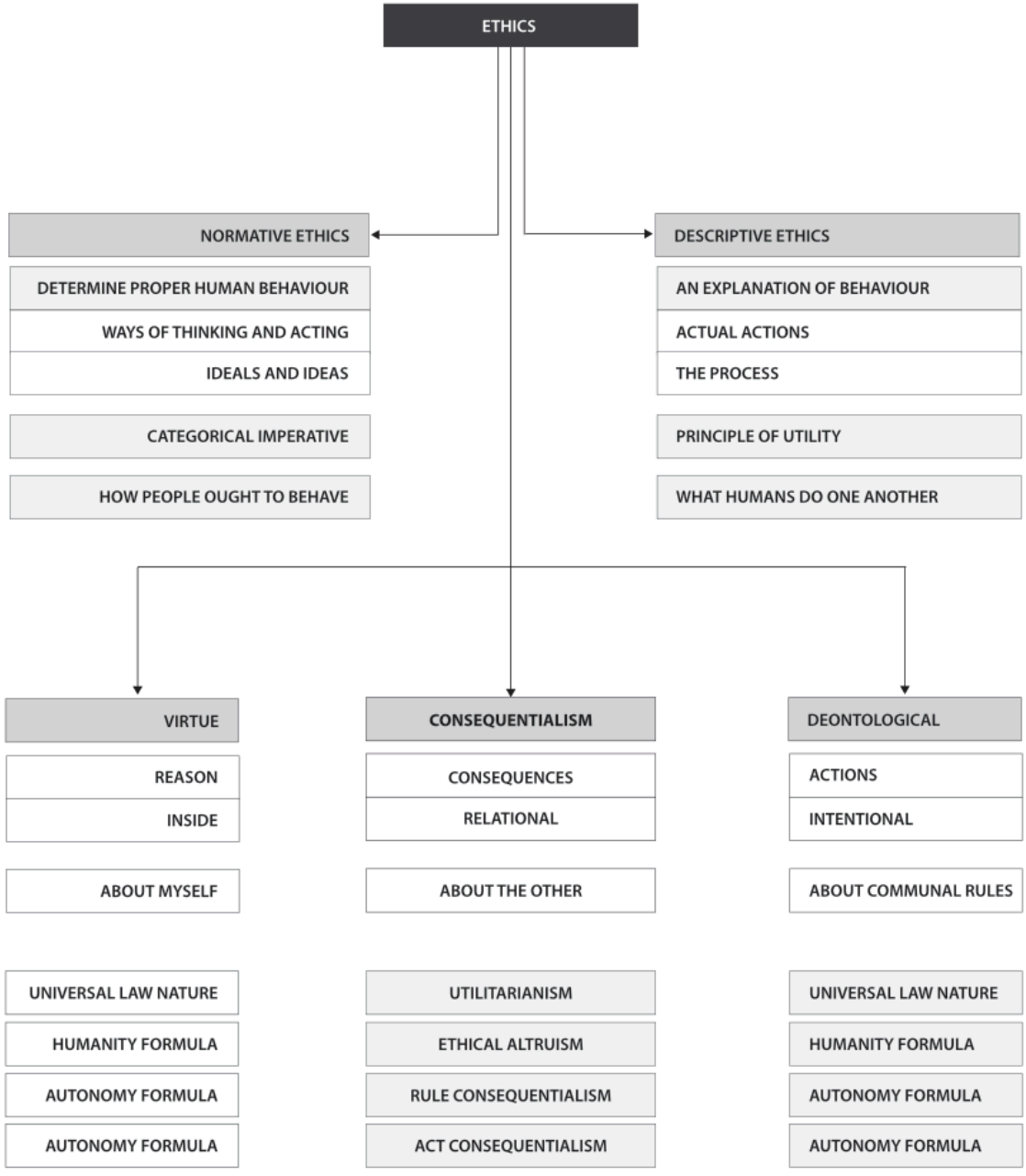
CHAPTER

DIAGRAMING

ETHICS



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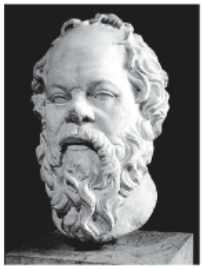
VIRTUE - PERSONAL



Socrates

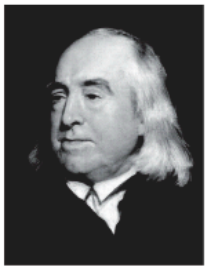
A virtue is generally agreed to be a character trait, such as a habitual action or settled sentiment. Specifically, a virtue is a positive trait that makes its possessor a good human being. A virtue is thus to be distinguished from single actions or feelings

Practical reason results in action or decision

THE USER

PROBLEM - LIMITED IN SCOPE

CONSEQUENTIALISM - INDIVIDUAL



Bentham

The consequences of one's conduct are the ultimate basis for any judgment about the rightness or wrongness of that conduct. Thus, from a consequentialist standpoint, a morally right act (or omission from acting) is one that will produce a good outcome, or consequence

The consequences are more important that the actions

THE CONSEQUENCE

DEONTOLOGY - RULES

Kant

Deontological ethics or deontology (from Greek δέον, deon, "obligation, duty") is the normative ethical theory that the morality of an action should be based on whether that action itself is right or wrong under a series of rules, rather than based on the consequences of the action

The action is more important than the consequences.

THE INTENTION

PRAGMATISM - SOCIAL

Dewey

Acknowledge the need for mechanisms which allow society to advance beyond such approaches. Aimed at social innovation. We should prioritise social reform over concern with consequences, individual virtue or duty.

The system is the most important element. And determines actions and consequences

THE SYSTEM

PROBLEM - NEEDS GLOBAL CONSENSUS

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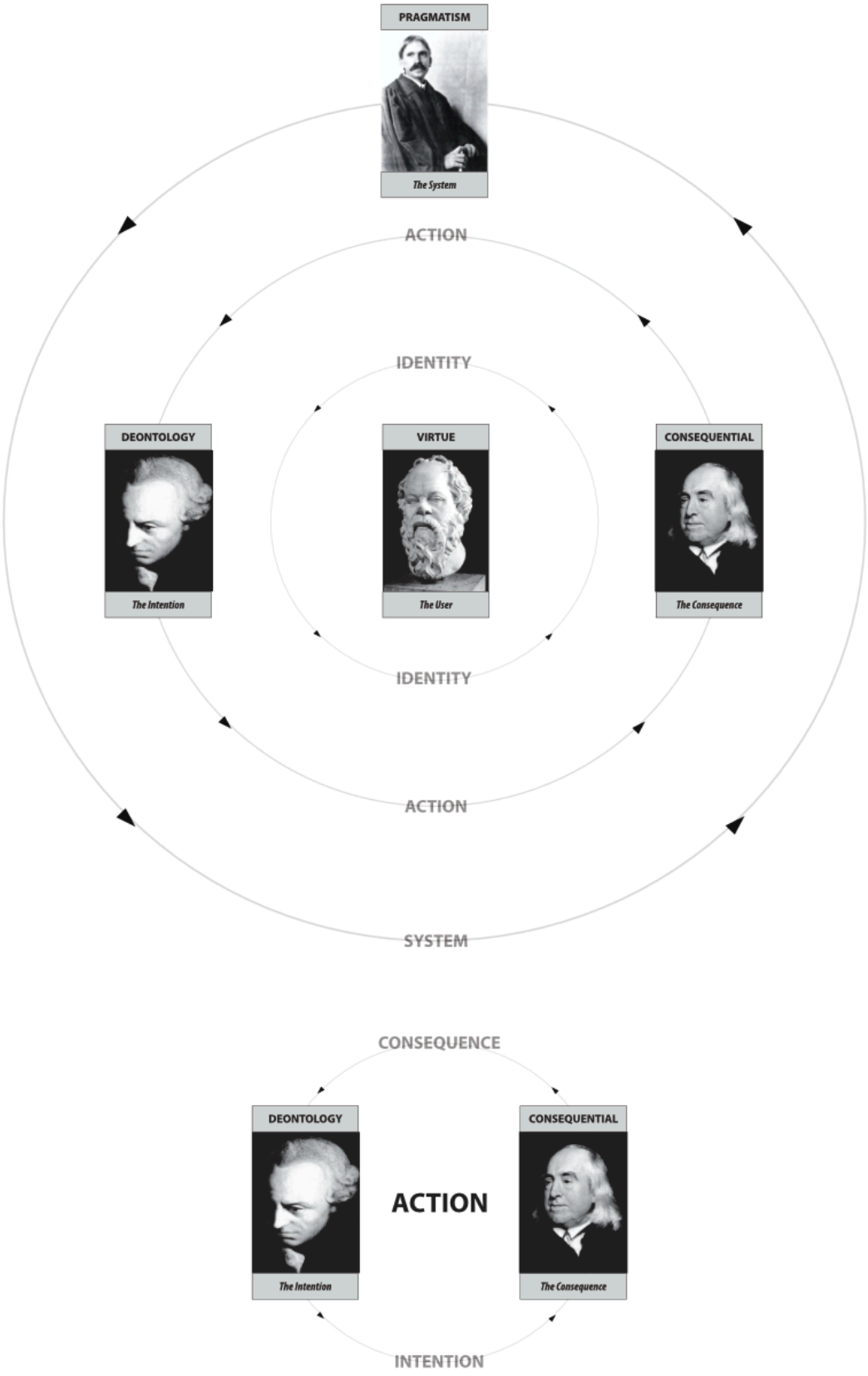

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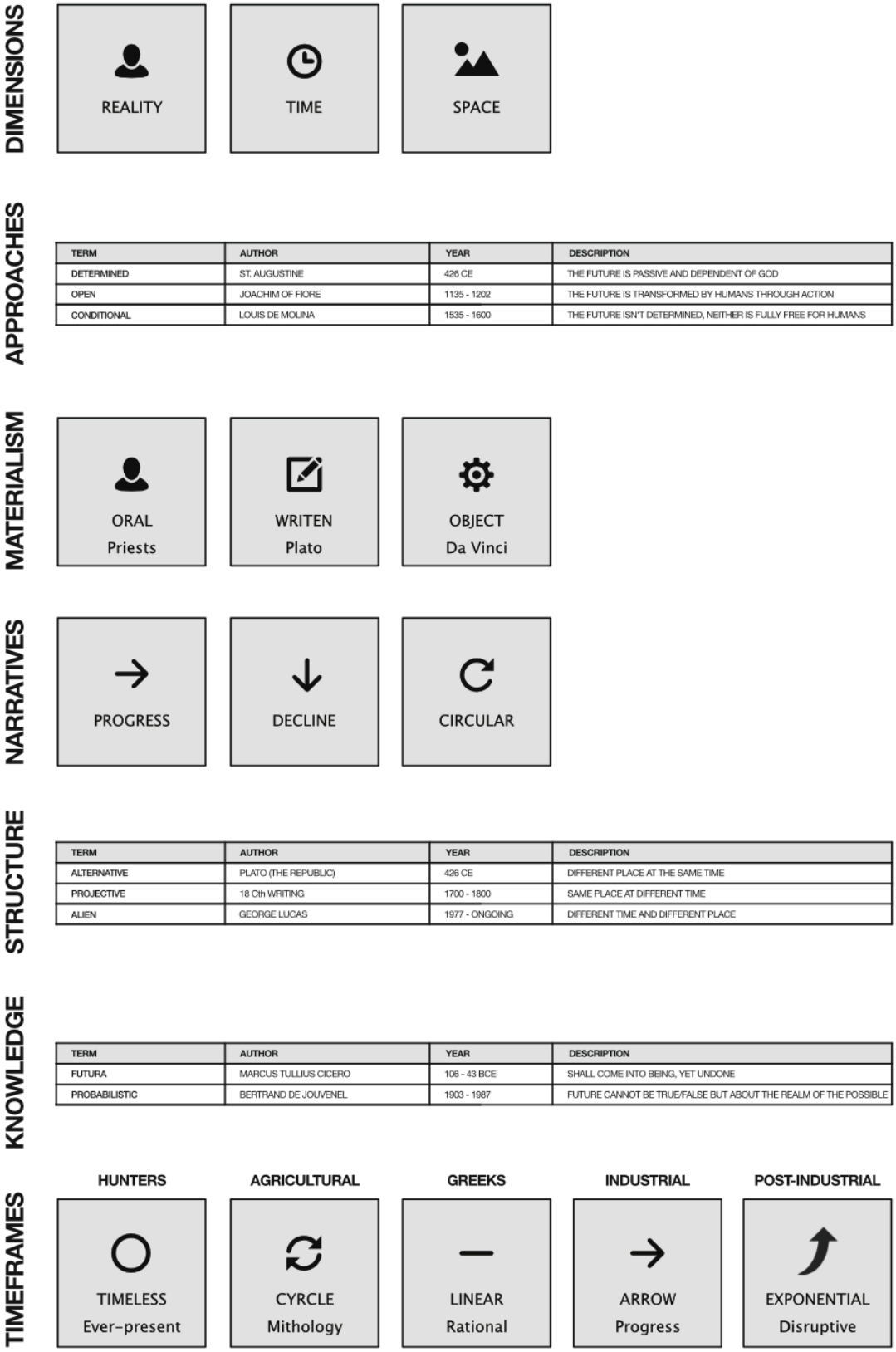
4

CHAPTER

DIAGRAMING

THE FUTURE



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ANTIQUITY

1000 BC - 1400 - PROPHECIES AND ALTERNATIVE FUTURES

TERM	AUTHOR	YEAR	APPROACH	FUNCTION	TIMEFRAME
PROPHECY	PRIESTS	1000 BCE	PRE-RATIONAL	PREDESTINE BY GOD	ETERNAL
LOGIC	PLATO	380 BCE	MENTAL-RATIONAL	HUMAN-CENTRED AROUND PROBLEMS	LINEAR
LOGIC	VIRGIL	42 BCE	MENTAL-RATIONAL	BETTER WORLD BASED ON HUMAN ACTIVITY	LINEAR
LOGIC	CICERO	106-43 BCE	ANALYTICAL	FUTURA; WHAT SHALL COME INTO BEING	LINEAR
THEORY	KHALDUN	1377	THEORETICAL	FUTURE IS A PLACE FOR PROGRESS OR DECLINE	CYCLICAL

RENAISSANCE

1400 - 1800 - PLANETARY EXPLORATION - UTOPIAS OF ANOTHER PLACE

TERM	AUTHOR	YEAR	APPROACH	FUNCTION	TIMEFRAME
VISIONARY	DA VINCI	1452-1519	CONSTRUCTIVE	VISIONS PROVIDED PROTOTYPES FOR INVENTIONS	ETERNAL
UTOPIA	MORE	1516	POLITICAL	COMMUNITY OVER INDIVIDUAL VALUES	ALTERNATIVE
IMAGINATIVE PROPHECY	NOSTRADAMUS	1555	PRE-RATIONAL	FUTURE EVENTS	PROJECTIVE
NEW ASTRONOMY	COPERNICUS	1543	SCIENTIFIC	FROM GEOCENTRIC TO HELIOCENTRIC UNIVERSE	ETERNAL
FUTURA	DE MOLINA	1589	POLITICAL	FUTURE NEITHER FULLY DETERMINED, NOR FREE	CONDITIONAL

SCIENTIFIC

1600 - 1700 - OBSERVATION AS METHOD

TERM	AUTHOR	YEAR	APPROACH	FUNCTION	TIMEFRAME
EMPIRICISM	BACON	1627	SCIENTIFIC	FROM IDEALISM TO SCIENCE AND PROGRESS	PROSPECTIVE
CARTESIANISM	DESCARTES	1937	PHILOSOPHY	THE FUTURE IS A MENTAL ACTIVITY	CONDITIONAL
SCIENCE FICTION	GODWIN	1638	LITERARY	FROM UTOPIA TO LITERARY FANTASY	ALTERNATIVE
EVOLUTIONARY	BOYLE	1662	SCIENTIFIC	THE FUTURE IS EVOLUTIONARY	INTERACTIVE
DETERMINISM	NEWTON	1687	SCIENTIFIC	MOVEMENTS CAN BE PREDICTED BY MATHS	PROJECTIVE

ENLIGHTENMENT

1700 - 1900 - THEORIES OF PROGRESS

TERM	AUTHOR	YEAR	APPROACH	FUNCTION	TIMEFRAME
PARTICIPATORY	ROUSSEAU	1783	PHILOSOPHY	SOCIALLY ENGAGED FUTURES	ALTERNATIVE
IDEALISM	SCHILLING	1800	PHILOSOPHY	HUMANISTIC IDEAS OF SOCIAL PROGRESS	PROJECTIVE
SOCIAL PROGRESS	TURGOT	1750	SOCIOLOGY	THE IDEA OF HUMAN PROGRESS	PROSPECTIVE
POSITIVISM	COMTE	1830 - 1860	SOCIOLOGY	POLITICAL SCIENCE CAN BE PREDICTED	PROJECTIVE
MARXISM	MARX	1848	POLITICAL	COLLECTIVE FUTURE	PROSPECTIVE
EVOLUTIONARY	DARWIN	1859	SCIENCE	THE FUTURE EVOLVES FROM INTERACTION	INTERACTIVE
SOCIAL ENGINEERING	SPENCER	1870	SOCIOLOGY	*SURVIVAL OF THE FITTEST*	PROSPECTIVE
SOCIALISM	MORRIS	1890	POLITICAL	ASPIRATIONAL FUTURES OF WORK	PROSPECTIVE

MODERNISM

1900 - 2020 - KNOWLEDGE-BASED FUTURES

TERM	AUTHOR	YEAR	APPROACH	FUNCTION	TIMEFRAME
ANTICIPATION	H. G. WELLS	1901	SCIENCE/CYBERNETICS	MULTIPLICITY AND OPENNESS	LONG-TERM
FORECAST	C. K. OGDEN	1920	SCIENTIFIC	PREDICTIVE EXTRAPOLATION OF TRENDS	SHORT-TERM
FUTUROLOGY	O. K. FLECHTHEIM	1950	SOCIAL SCIENCE	PROJECTION OF HISTORY INTO NEW DIMENSION	MEDIUM-TERM
PROSPECTIVE	G. BERGER	1957	HUMAN AGENCY	FROM SEEING THE FUTURE TO TAKING ACTION	INTERACTIVE
SCENARIO PLANNING	H. KAHN	1960	COMMERCIAL	MAPPING THE FUTURE	VARIABLE
STRATEGIC FORESIGHT	R. SLAUGHTER	1990	PARTICIPATORY	NON-ACTIVIST STRATEGIC MANAGEMENT	LONG-TERM
TREND SPOTTING	2000	2000	COMMERCIAL	AGGREGATIONS OF PAST INFORMATION	SHORT-TERM
CRITICAL FUTURES	A. DUNNE, J. AUGER	2010	SOCIAL SCIENCE	ACTIVIST SCENARIO INTERVENTION	SHORT-TERM

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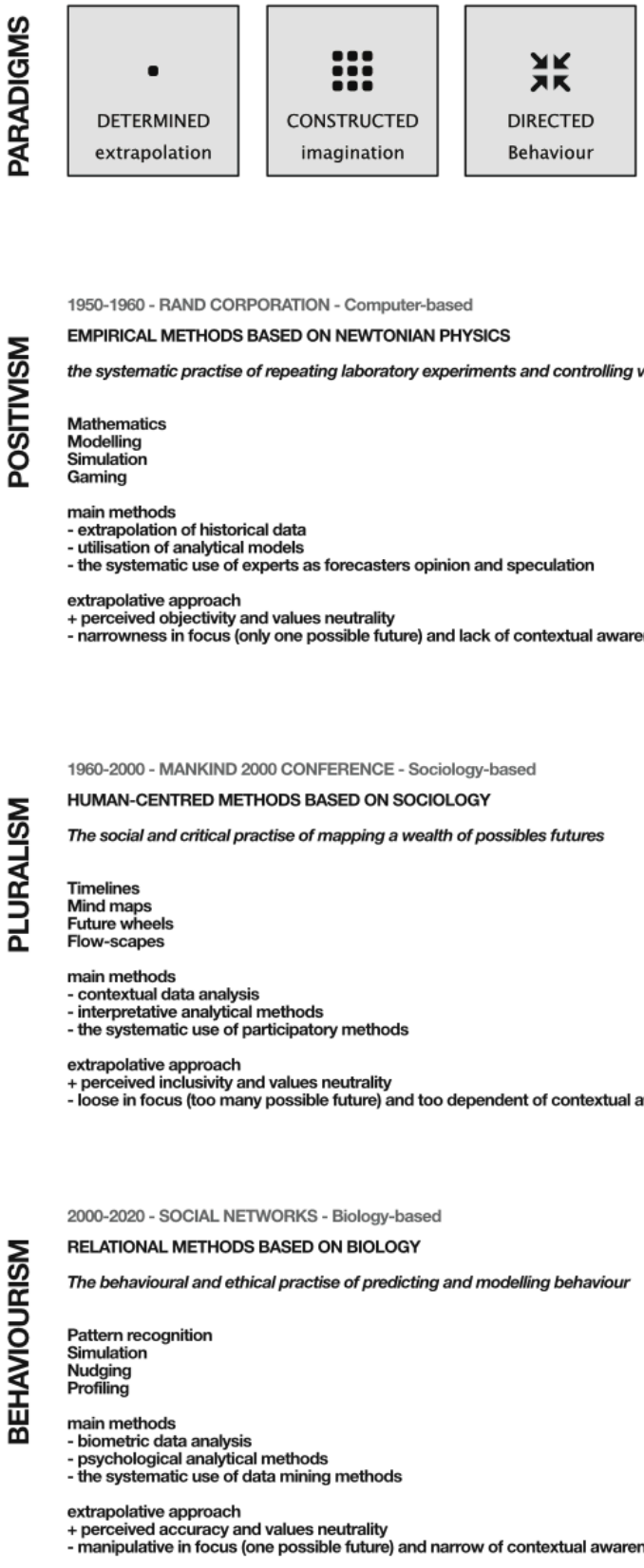

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PLURALISM

1960-2000 - MANKIND 2000 CONFERENCE - Sociology-based

HUMAN-CENTRED METHODS BASED ON SOCIOLOGY

The social and critical practise of mapping a wealth of possibles futures

Timelines
Mind maps
Future wheels
Flow-scapes

main methods
- contextual data analysis
- interpretative analytical methods
- the systematic use of participatory methods

extrapolative approach
+ perceived inclusivity and values neutrality
- loose in focus (too many possible future) and too dependent of contextual awareness

INPUTS	GATHERING INFORMATION	METHODS
		WORKSHOPS
		QUESTIONNAIRES
		INTERVIEWS
		SURVEYS
		TECHNOLOGY ASSESSMENTS

ANALYSIS	MEANING-MAKING	METHODS
		ISSUES ANALYSIS
		TRENDS ANALYSIS
		EXTRAPOLATION
		CROSS-IMPACT ANALYSIS
		TEXTS ANALYSIS
		DIALOGUE

INTERPRETATIVE	GAINING DEEPER INSIGHT	METHODS
		MACRO-HISTORY
		CAUSAL LAYERED ANALYSIS
		SYSTEMS THINKING
		HERMENEUTICS
		MIX-METHODS - BRICOLAGE
		ETHNOGRAPHY
		MEDIA CRITIQUE
		CULTURAL ARTEFACTS

OUTPUTS	TO PRODUCE FUTURE IMAGES	METHODS
		VISIONING
		IMAGINATION
		CREATIVITY
		SCENARIO PLANNING
		VISION-ACTION
		ACTION RESEARCH
		PARTICIPATORY FUTURES
		QUESTIONNAIRES

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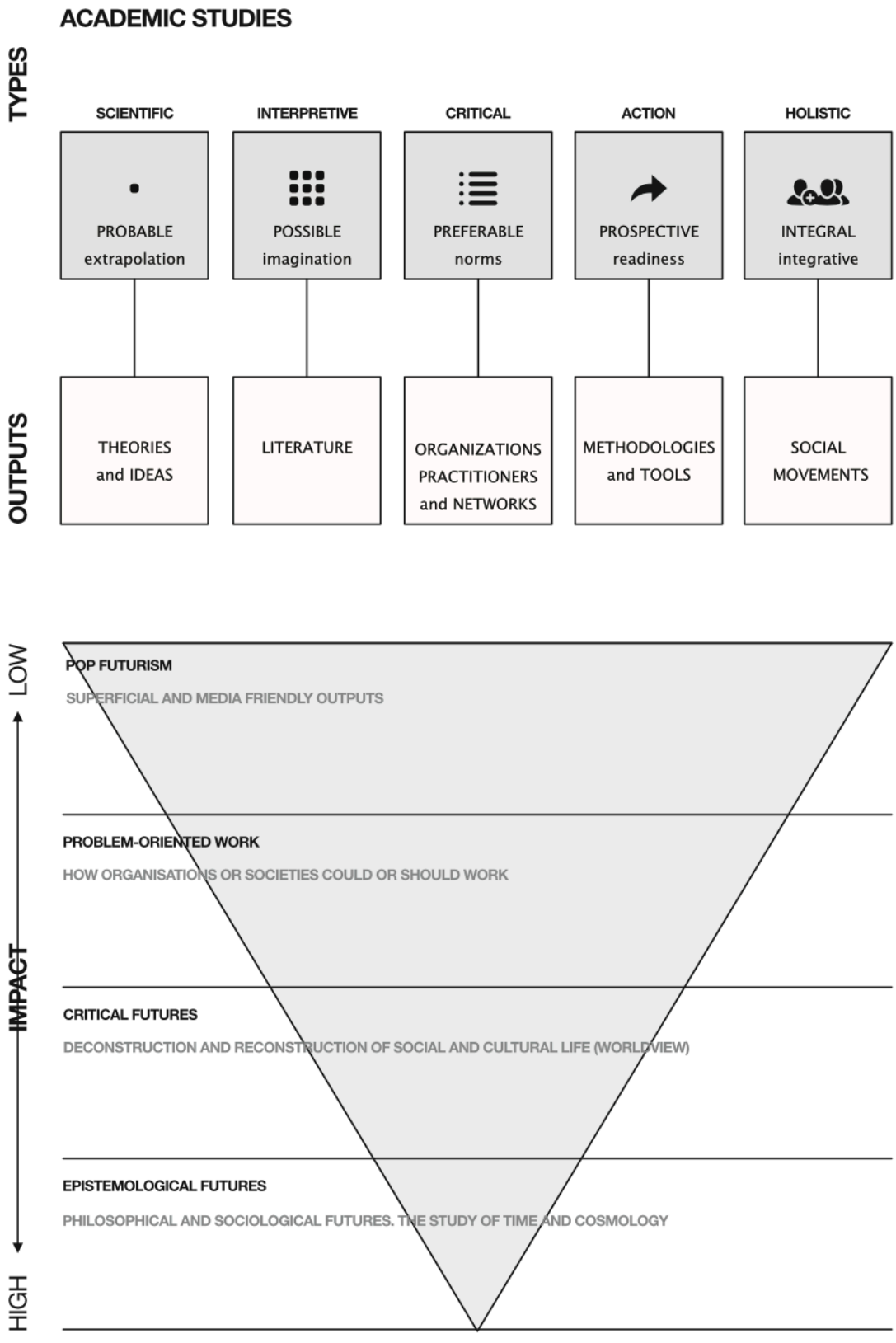

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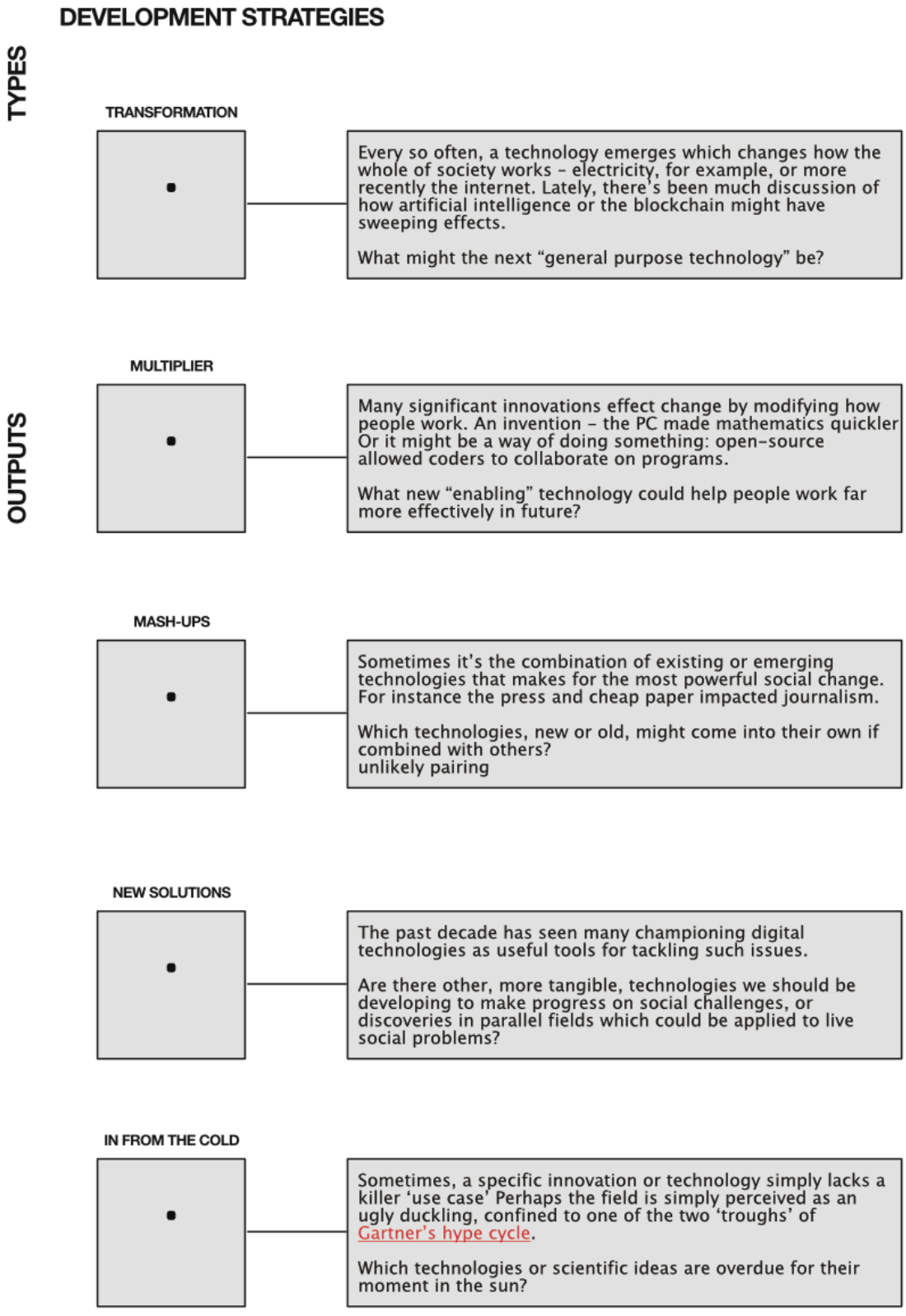

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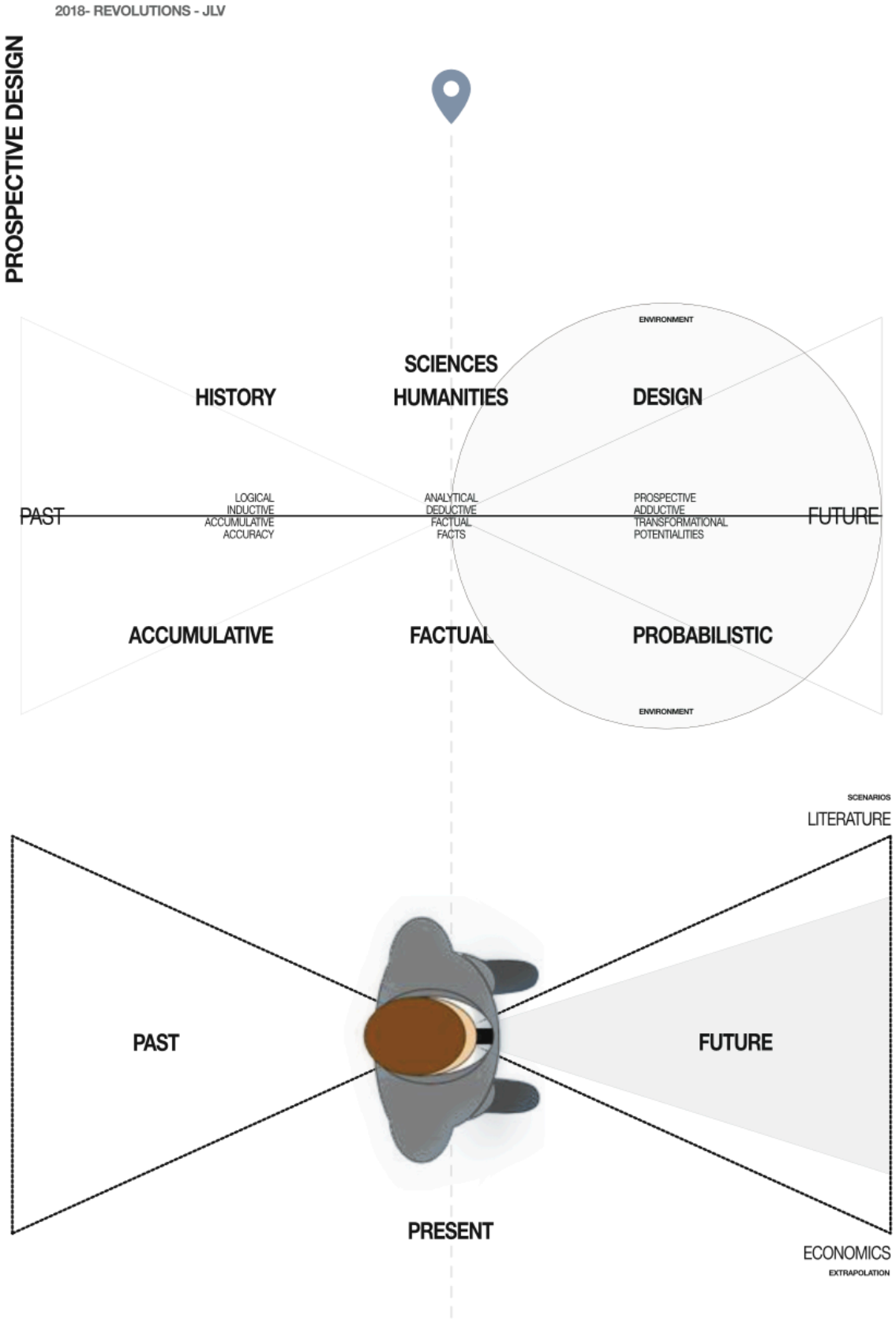

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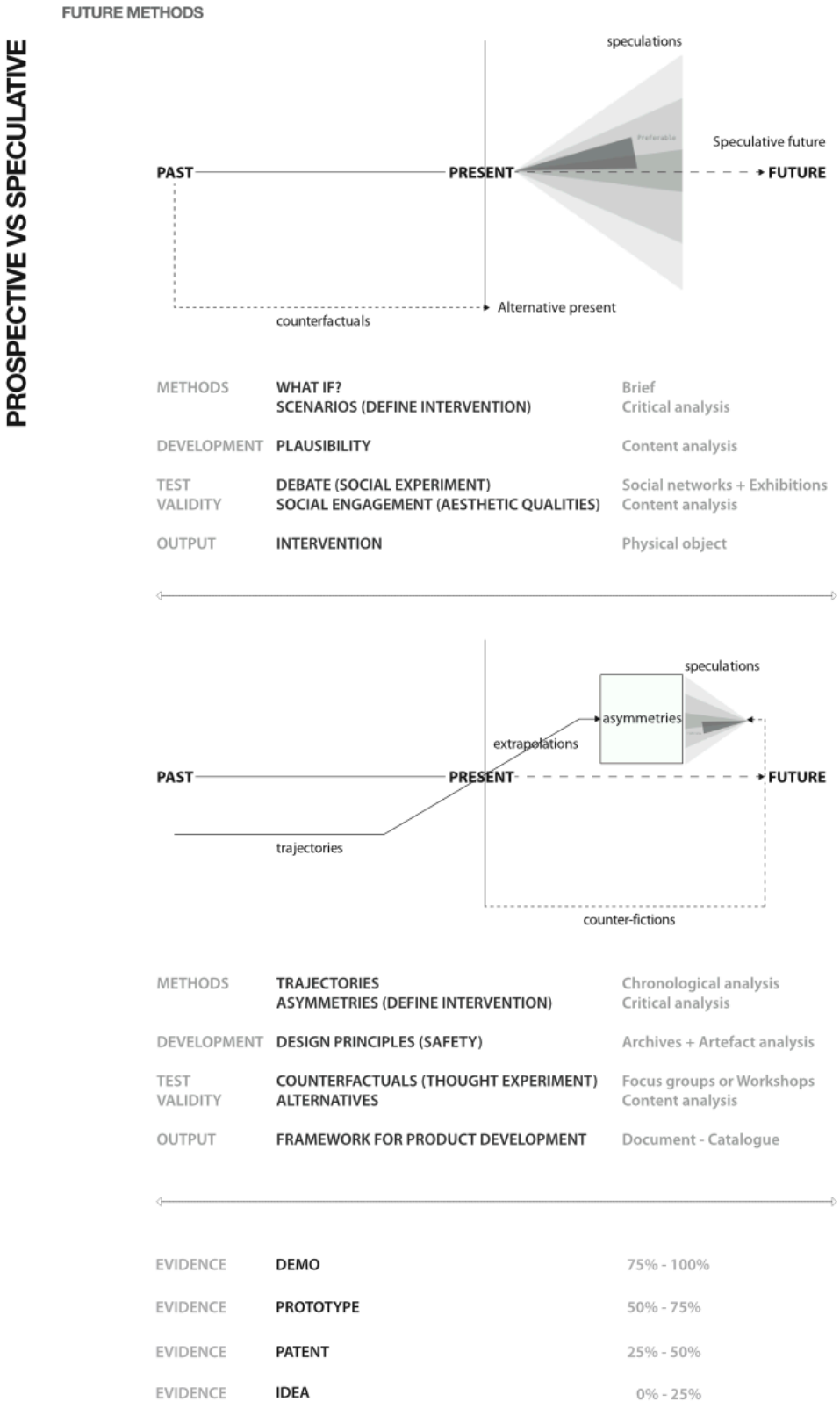

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METAPHYSICAL EMPIRICISM

2012- COUNTRE-FICTIONS - Yves Citton

HUMAN-CENTRED METHODS BASED ON SOCIOLOGY

the non-place of the fiction constitutes an unlocking operator become central in the contemporary political conflicts, in that it allows to open a space of rejection of the data, in a world where they are of more and more the "data" that oppress us

VISIONARY DIMENSIONS = ANTY-SYSTEMIC NARRATIVES

INITIATORY CONTER-FICTIONS

- DESIGNERS AS INITIATORS - new worlds
- REALITY = FICTION
- FACT = CONSTRUCTS ISOLATED REALITY (according to certain ends, perspectives, values, strategies, etc.)
- FACT BECOMES FICTION = SIMULATION AND SIMULACRA

DENUNCIATORY COUNTER-FICTIONS - against productivist disorientation
- REACTIONS OF DETACHMENT

DOCUMENTARY COUNTER-FICTIONS - against colonisation of cliches
- TO PORTRAY REALITY BLOCKS (SURPRISE AND DISCOVERY) FROM INTENTIONALITY TO SERENDIPITY

Citton, Y. (2012). Contre-fictions : trois modes de combat. Multitudes, 48(1), 72-78. doi:10.3917/mult.048.007
(influenced by Latour)

2015 - COUNTER-FICTION - Ludovic Burel, Ju Hyun Lee

HUMAN-CENTRED METHODS BASED ON PHENOMENOLOGY

Performance and the body

infiltration
piracy

conference/performance/publication

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KNOWLEDGE TYPES

2012- TRIAD

ARISTOTLE - TRIAD OF KNOWLEDGE

NICOMACHEAN ETHICS, BOOK II, CH. 2 (II39a27-28)
NICOMACHEAN ETHICS, BOOK VI, CH. 2 - 7
METAPHYSICS, BOOK I, CH. 1-3

Builds from Pythagorean tradition

THEORETICAL KNOWLEDGE - episteme

- Metaphysics; mathematics; natural sciences (NE II39a27-28)
- immovable (NE II39a27-28)
- Things universal and necessary (EN II 40b31-32)
- Beyond true object - contemplation
- No practical end, but focused on ends - origin (MET 982b12-21)

PRACTICAL KNOWLEDGE - praxis

- Ethics, politics (NE II39a27-28)
- in motion; has an end (NE II39a27-28)
- concerned with action and human behaviour
- action itself is its end (NE II40b5-7)
- action for the sake of an end (PHY 199a8-18)

PRODUCTIVE KNOWLEDGE - poiesis

- Architecture; medicine; navigation (NE II39a27-28)
- have no end in itself. always implicated/remain in exchange
- resistance to determinate end
- capacity to make involving reasoning
- concern with something coming into being
- things that can be otherwise. always outside of itself.
- it cannot transcend time. depends on time and circumstances (me = future exist)
- ability to size the right moment (timing)
- neither, the user or the producer, are capable of determining productive knowledge. it is defined by an act of exchange
- has no external arbiter, no final judge. Only users and makers who change with exchange
- its transfer always redefine the subjects involved by effecting a shift in power and status
- defined by social exchange
- concerned with competing standards of value rather than securing boundaries of knowledge
- concerned with indeterminate and possible. with alternative possibilities (47;7357a4-5)
- is instrumental and situated
- its value is social and economical
- From passive intellect (reason becoming its object) to active intellect (object being defined)

- faculties of doing that which we choose with the material available (Lobkowicz)

Atwill, J. M. (1998). Rhetoric Reclaimed; Aristotle and the Liberal Arts Tradition. First Edition. Cornell University Press

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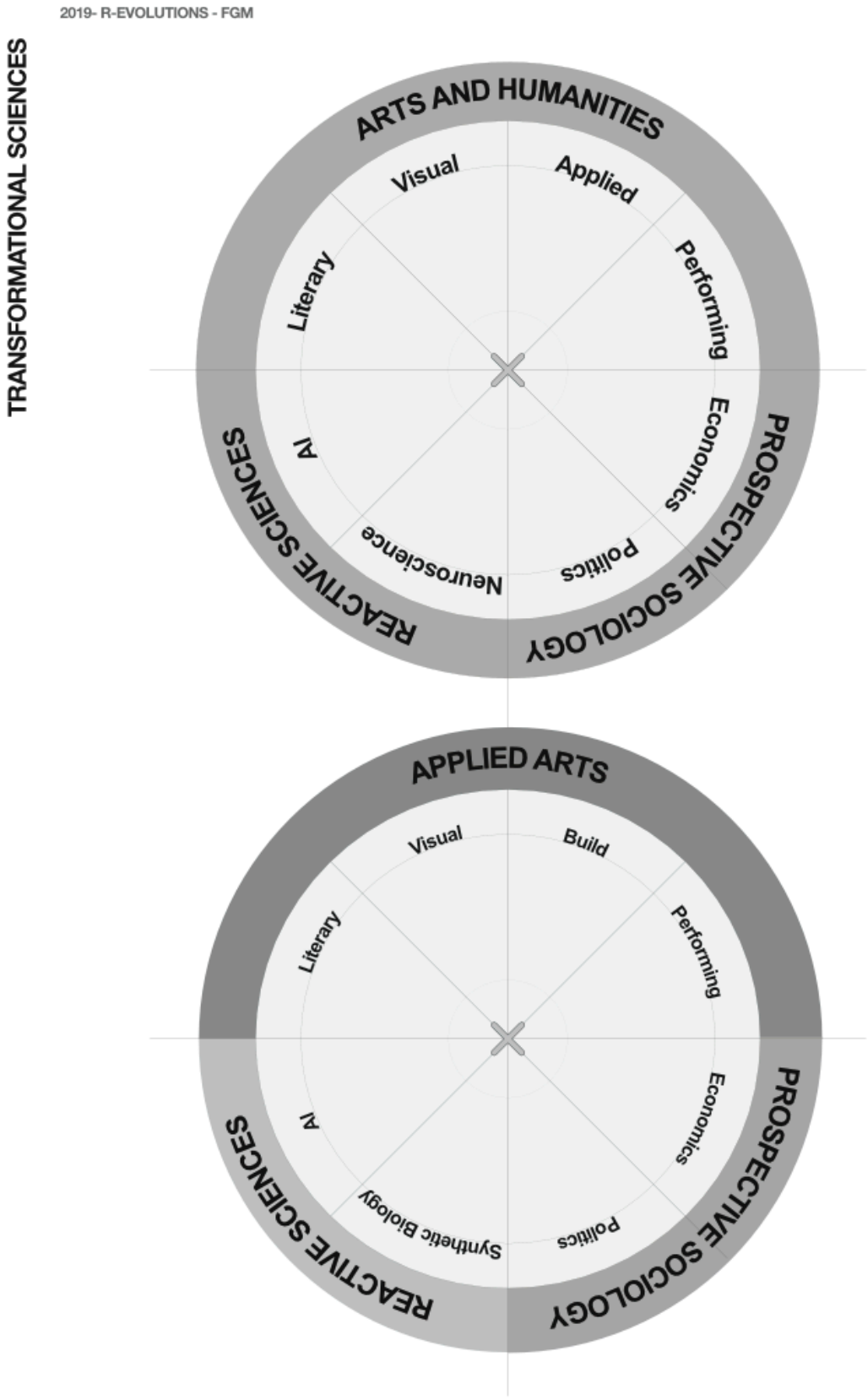

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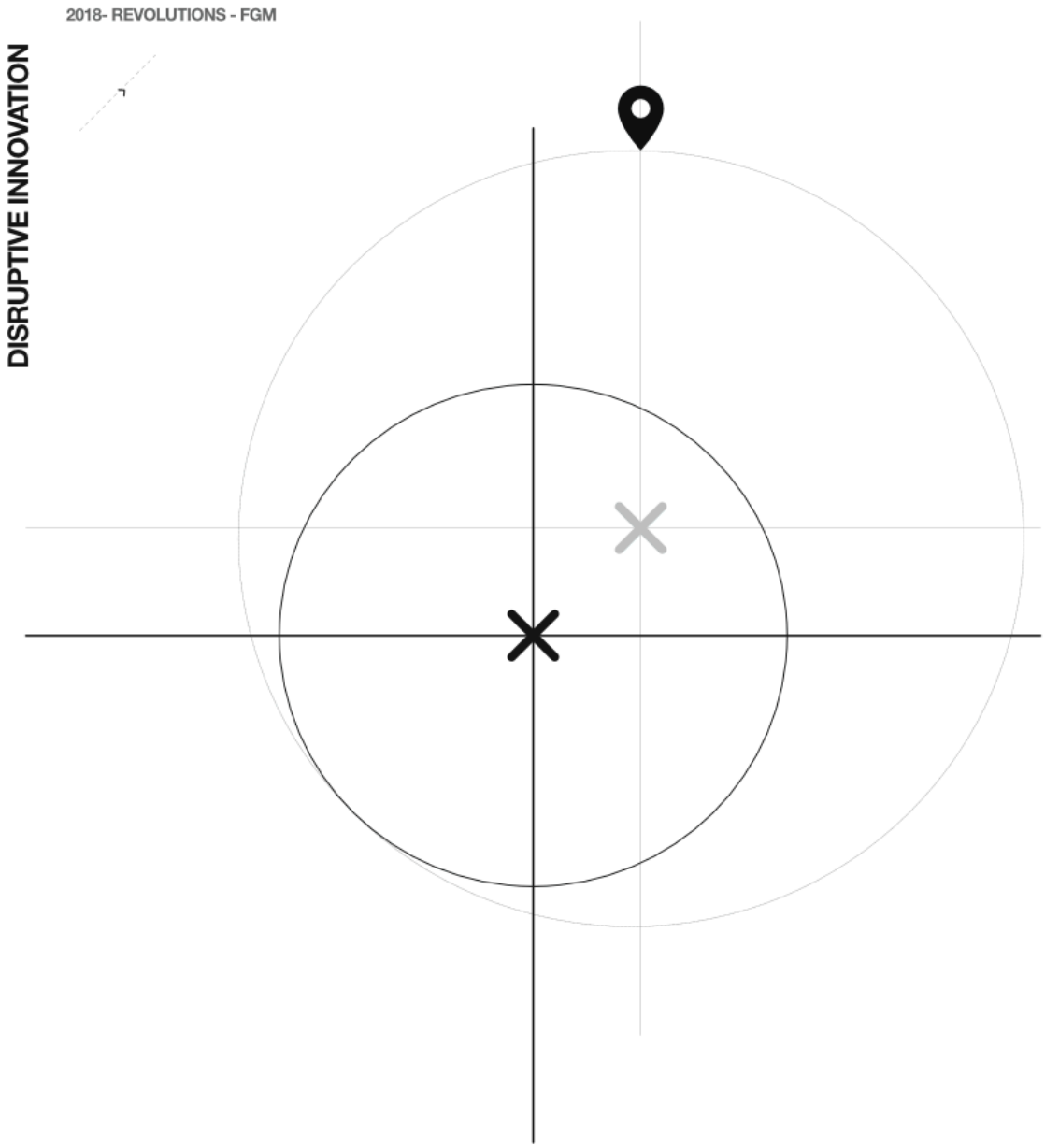

PROCESS

A revolution is always an intellectual transformation
You need to localise a point to observe the current state form an outside perspective
It demands a passive optic to neutralise an active optic, which only affirms what you are seeing
This points allows you to reflect on what is latent to describe a new centre

- Copernicus - used cosmology as a passive optic to observe and describe a new centre - the sun
- Luther - used justice as a passive optic to observe and describe a new centre - divine justice
- Einstein - used physics as a passive optic to observe and describe a new centre - relativity
- Lenin - used historical materialism as a passive optic to observe and describe a new centre - communism

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5

CHAPTER

DIAGRAMING

ONTOLOGY

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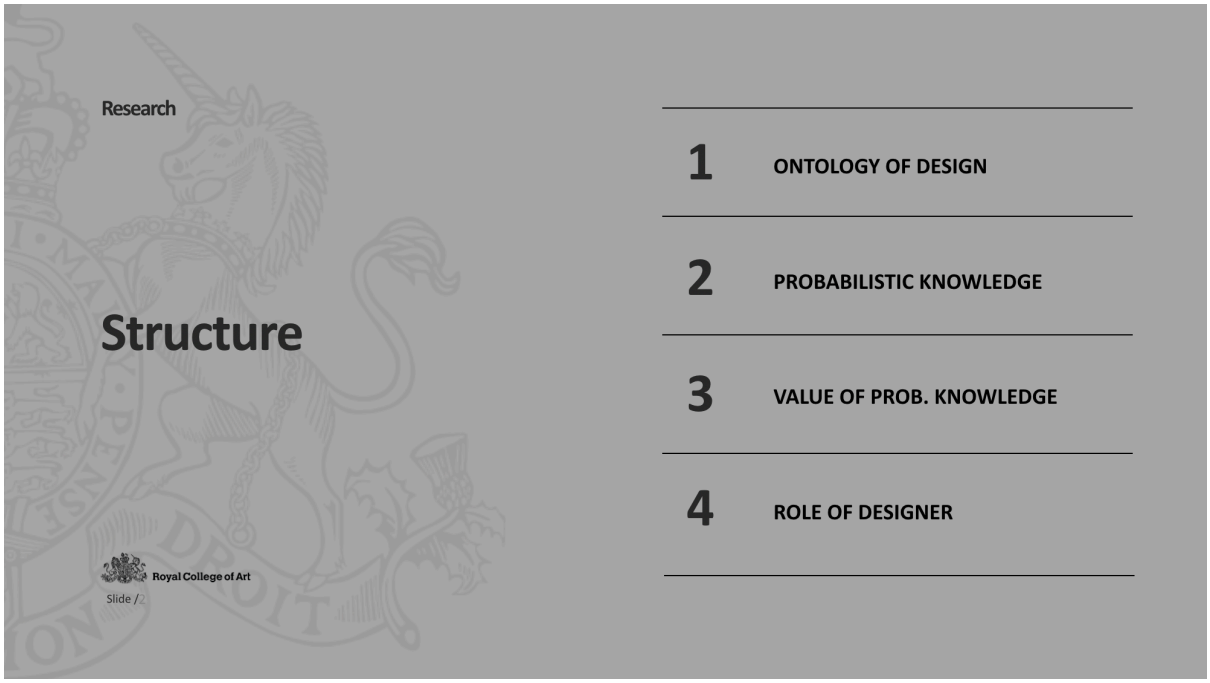

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The ontological nature of design

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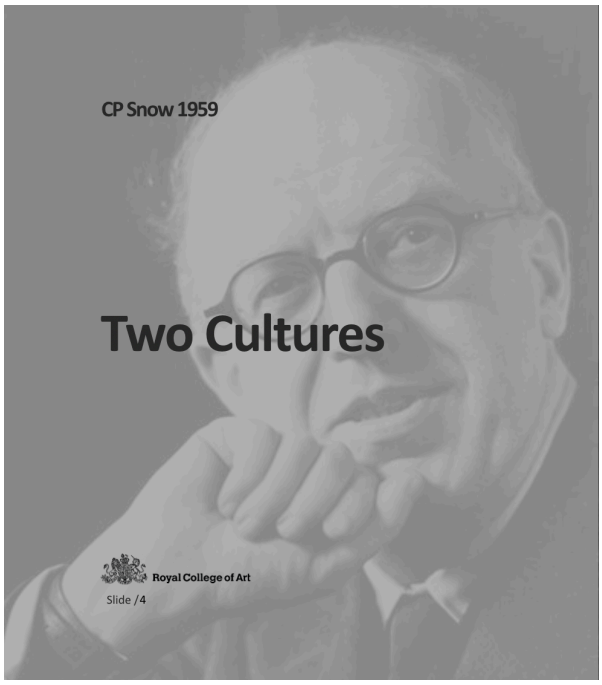

Science

Humanities

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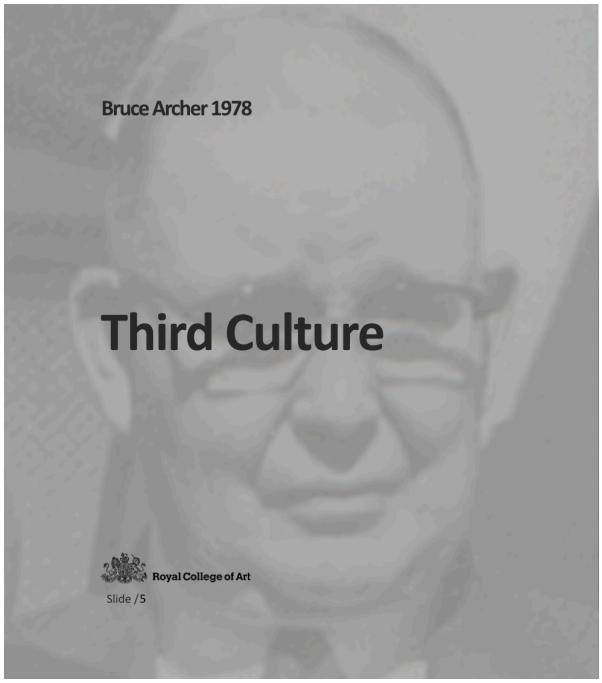

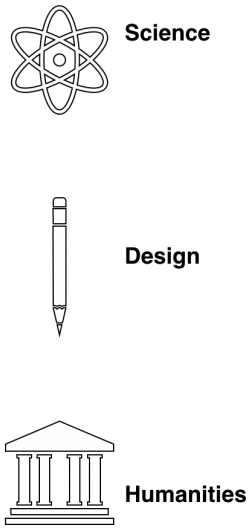

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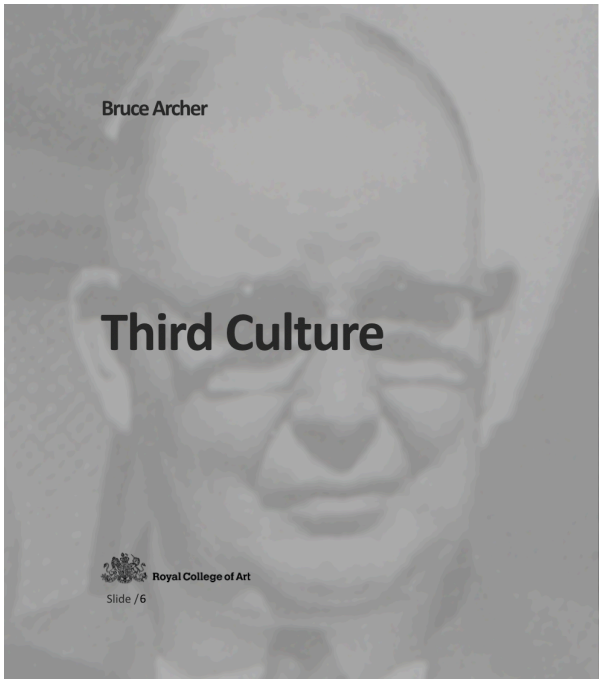

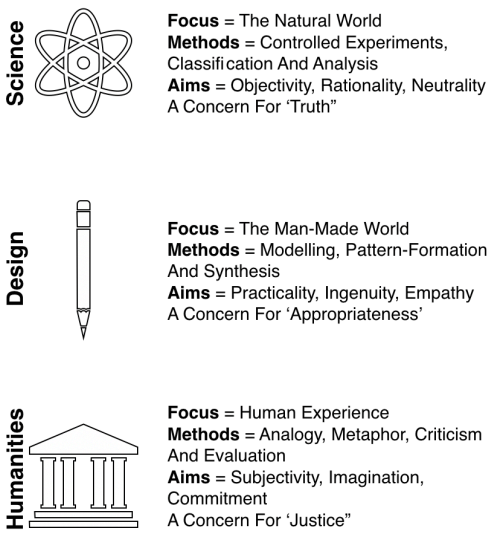

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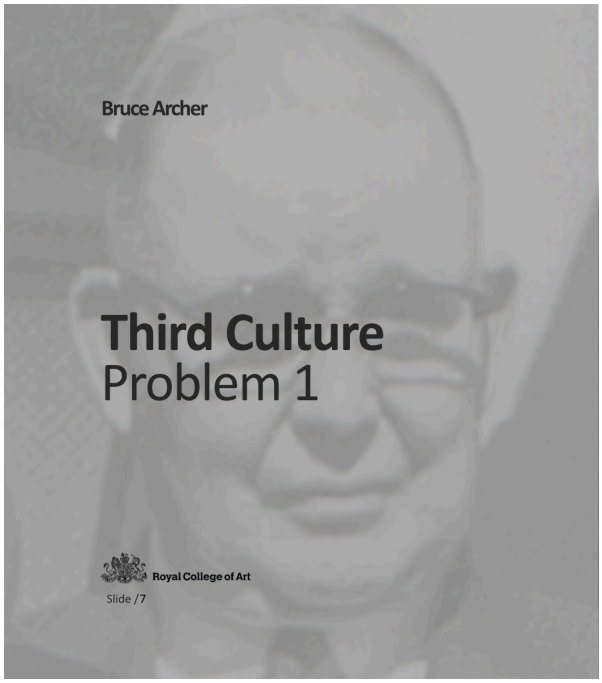

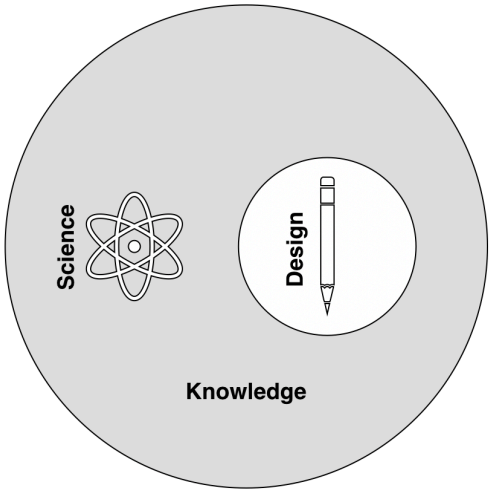

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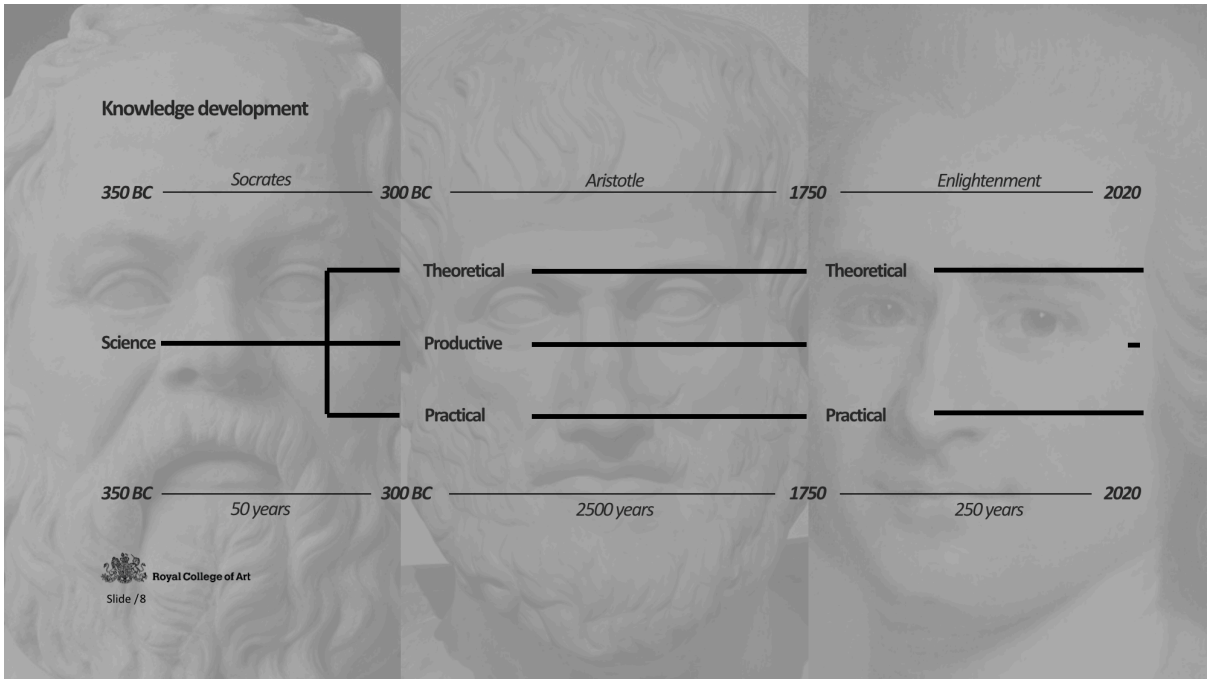

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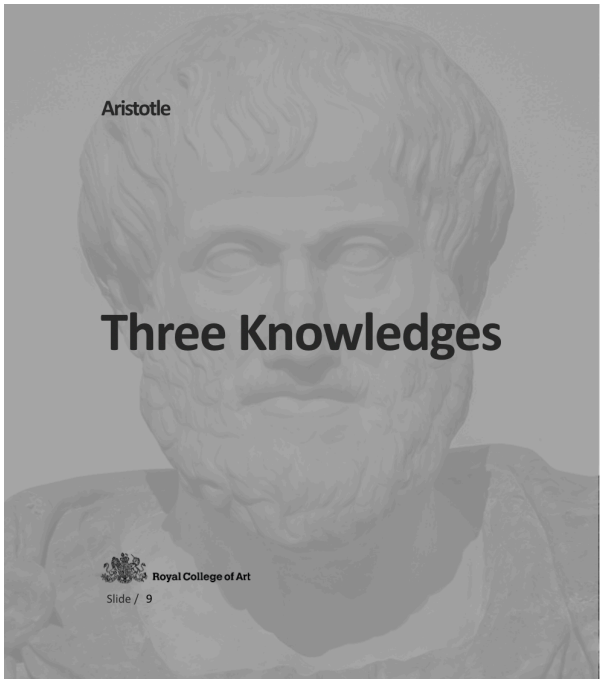

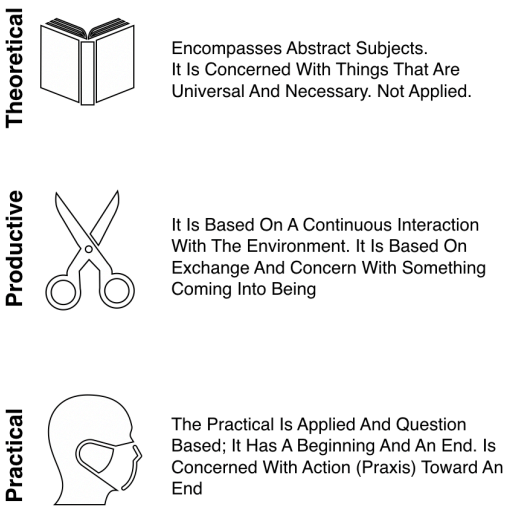

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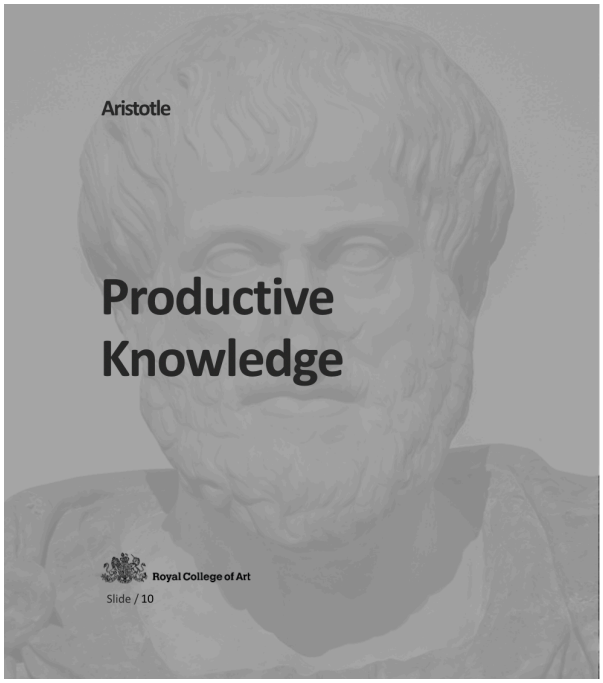

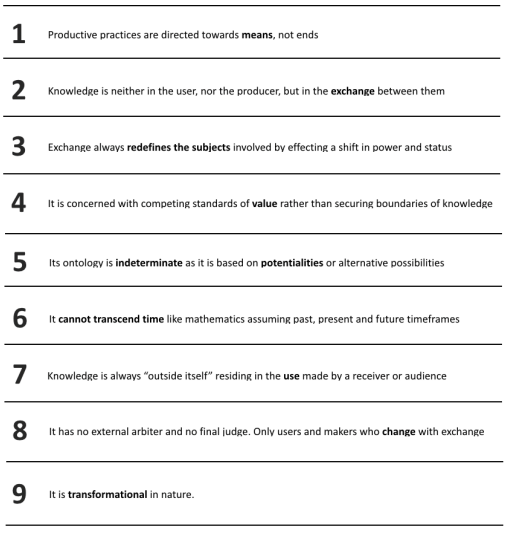

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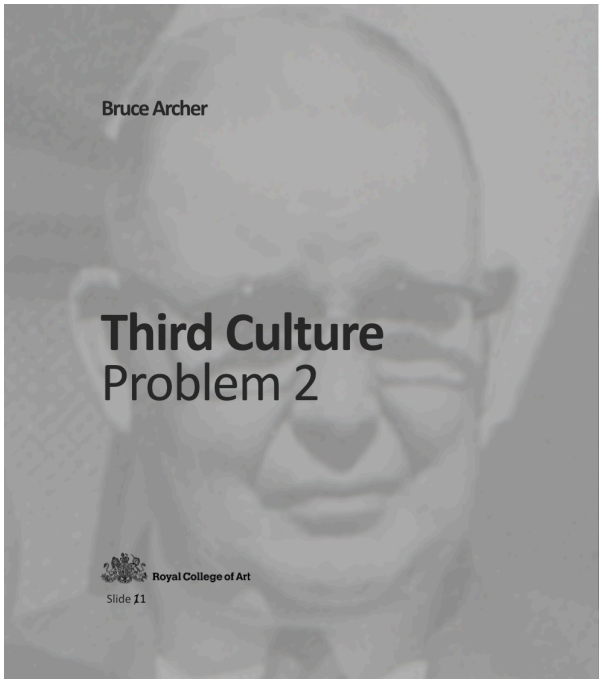

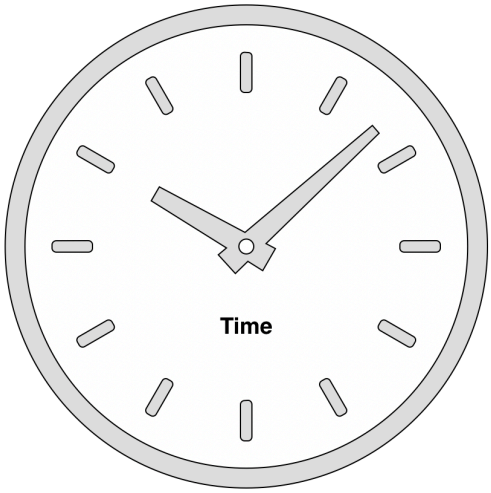

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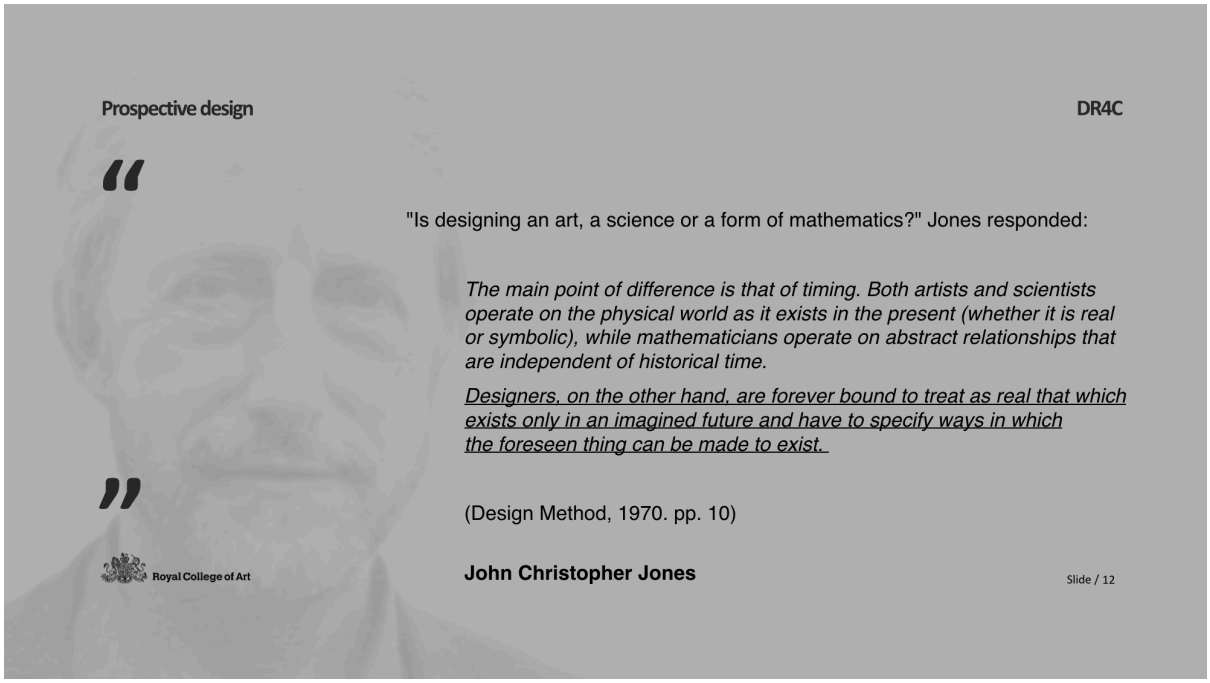

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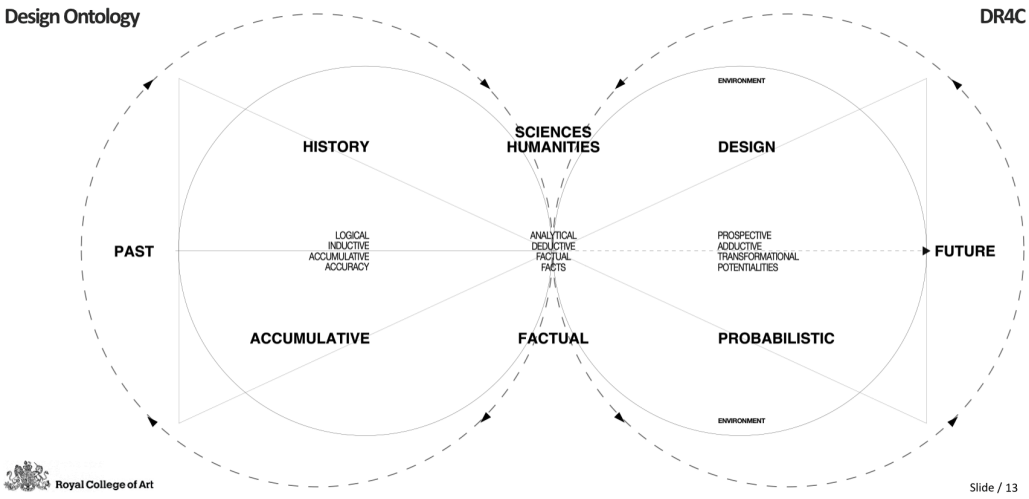

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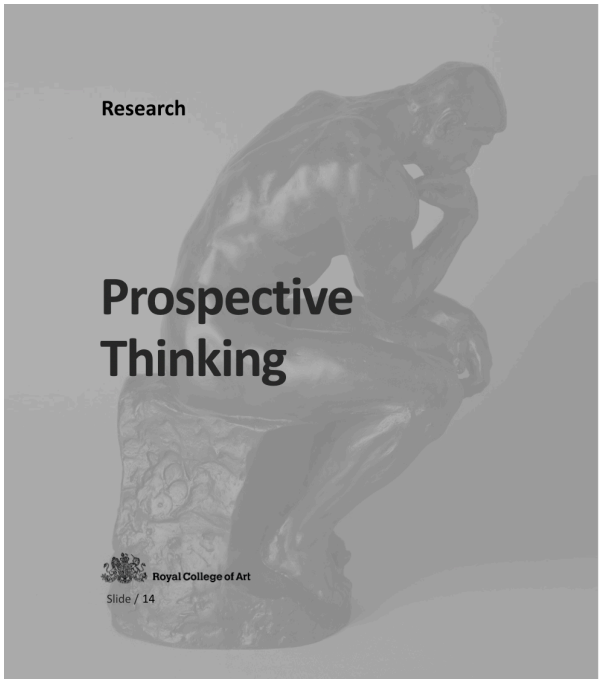

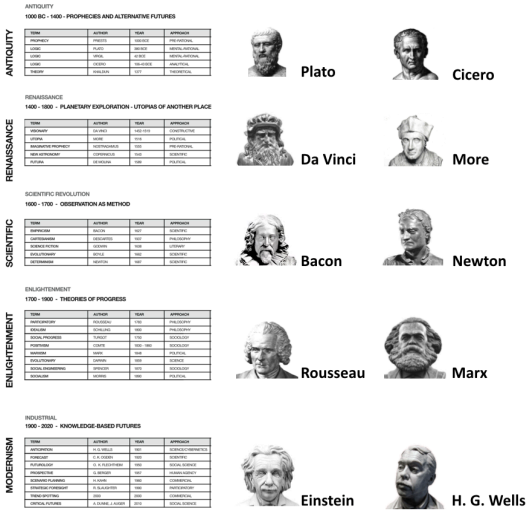

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Probabilistic knowledge

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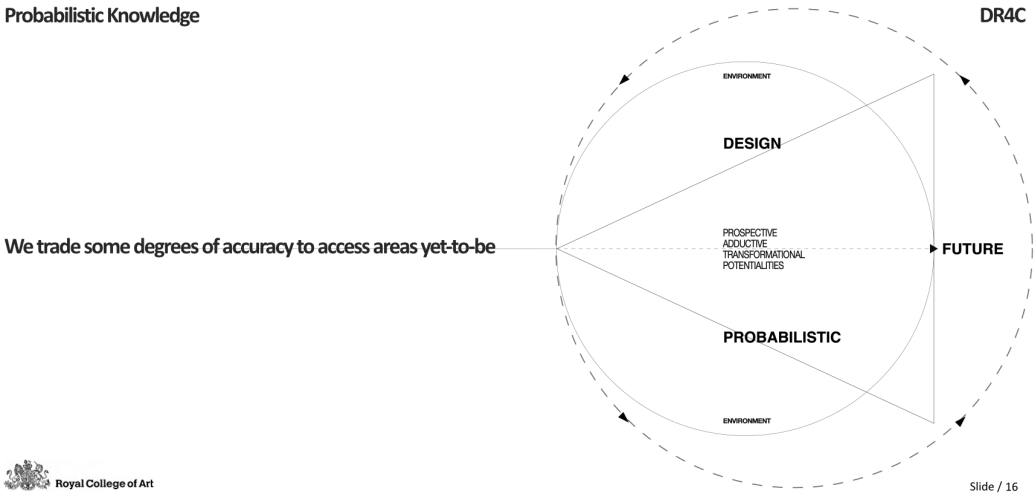

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Research

Prob. Knowledge

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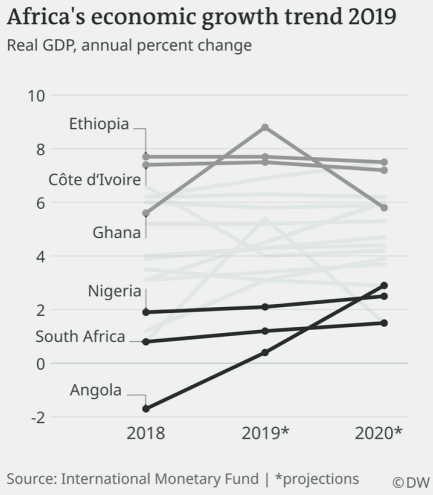

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Probabilistic knowledge

DR4C

Characteristics

1	**Partial Knowledge - Known a posteriori**
2	**Dependent on environmental factors - (exchange)**
3	**Preliminary in nature - (no conclusive)**

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Slide / 18

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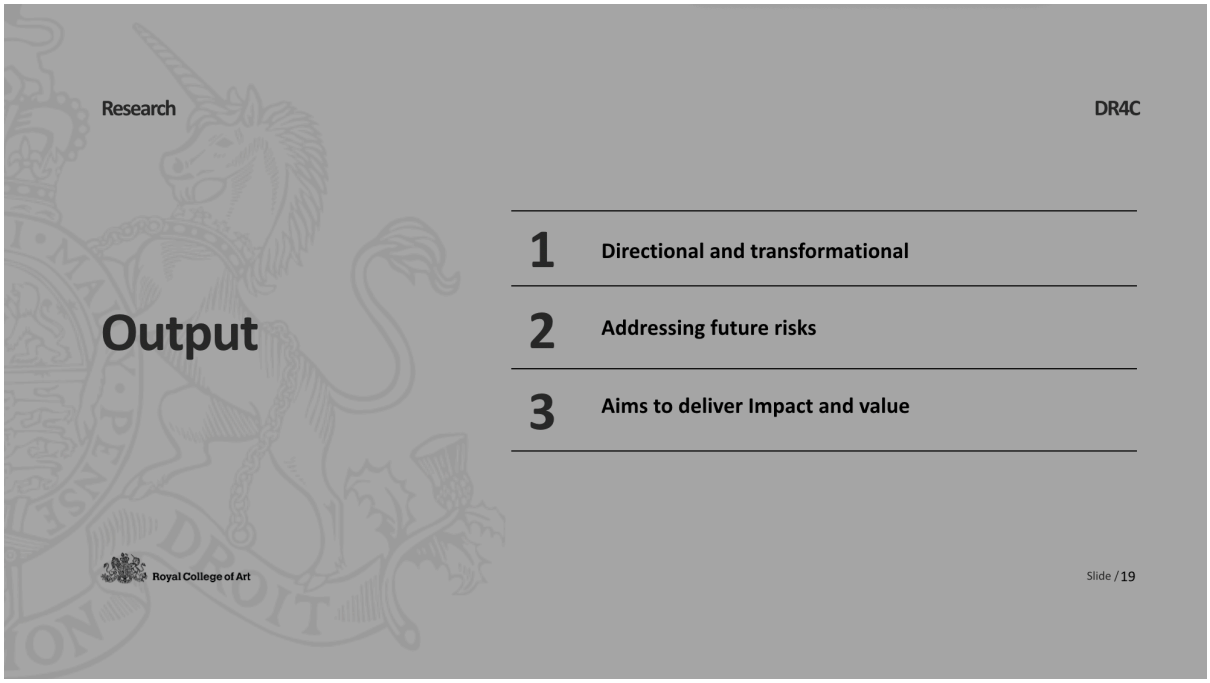

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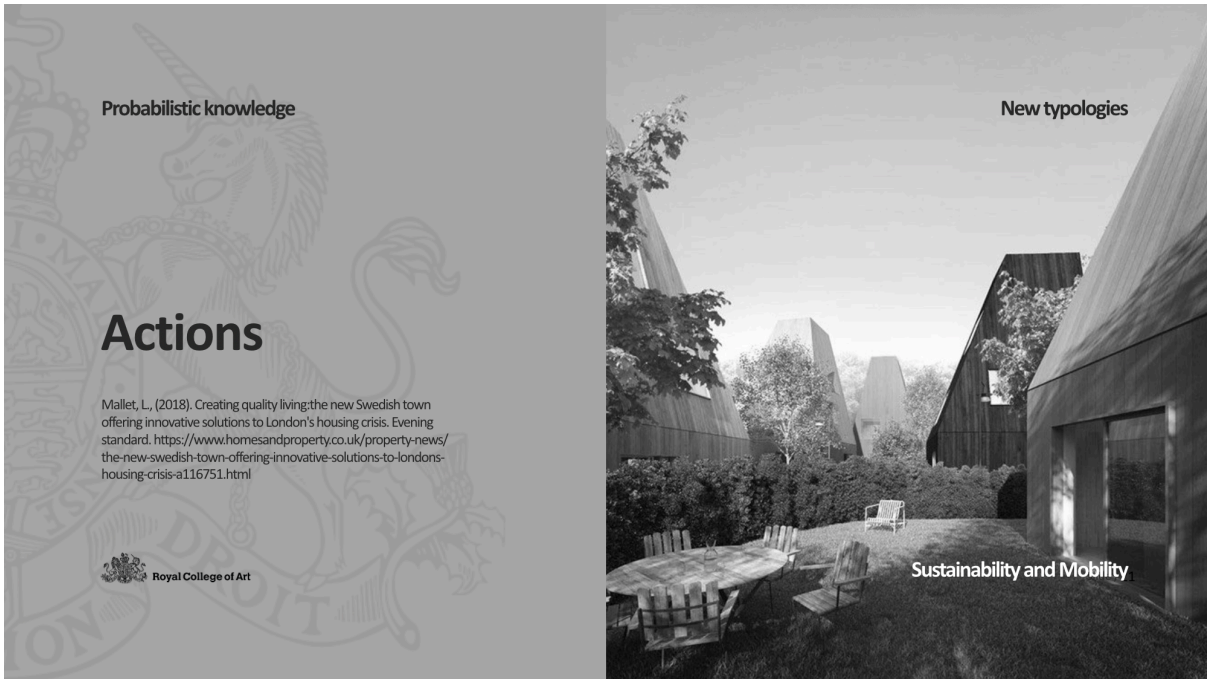

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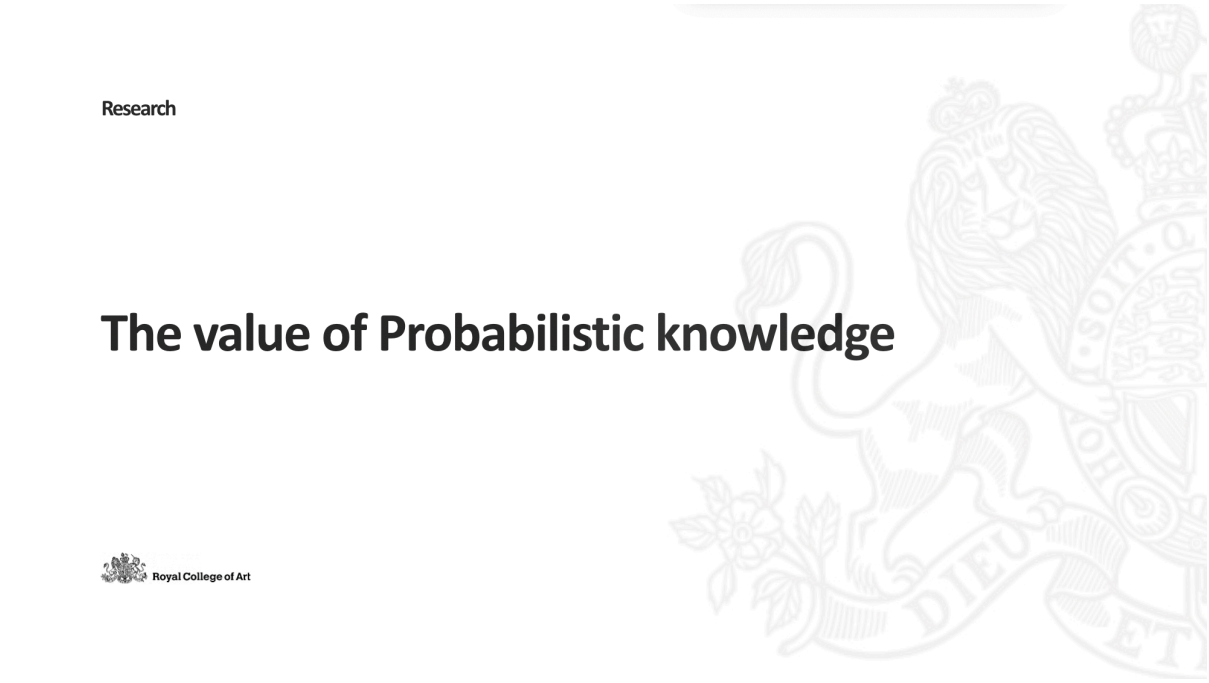

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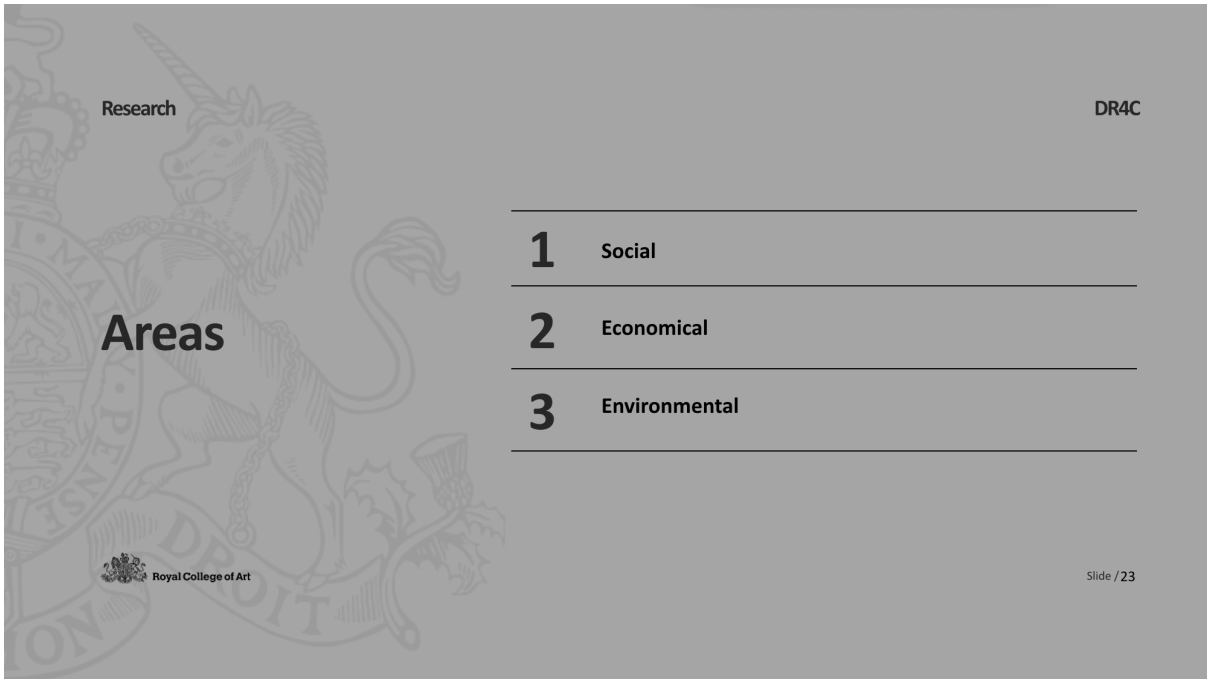

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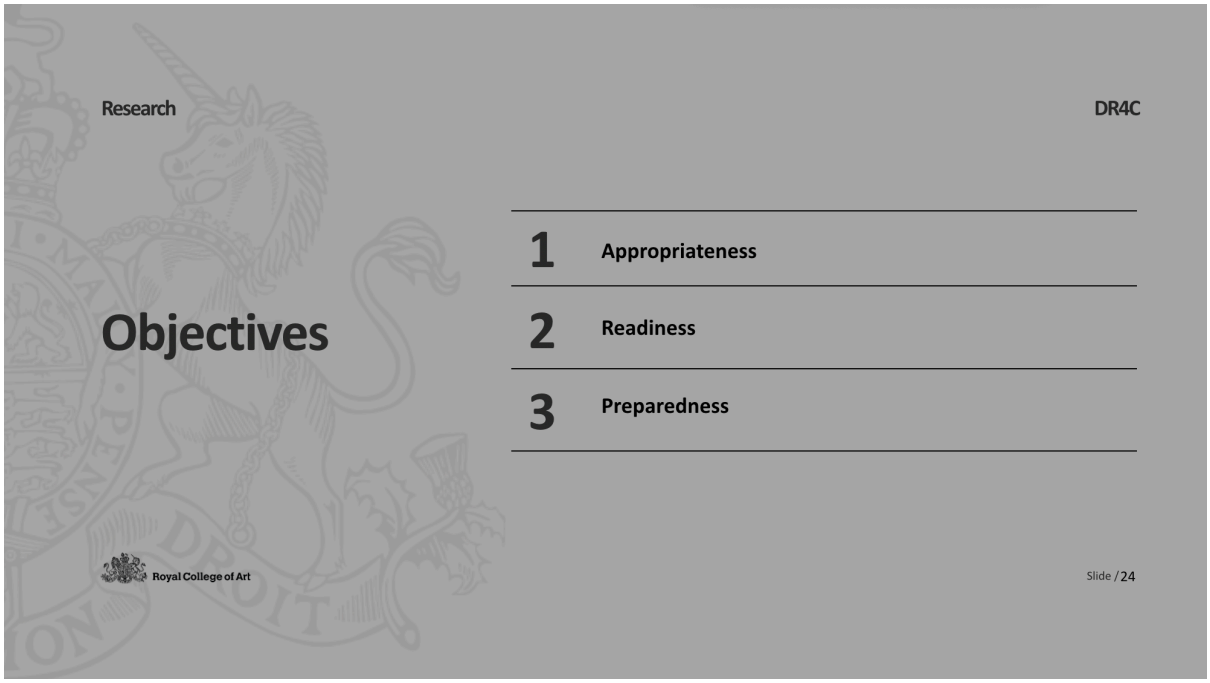

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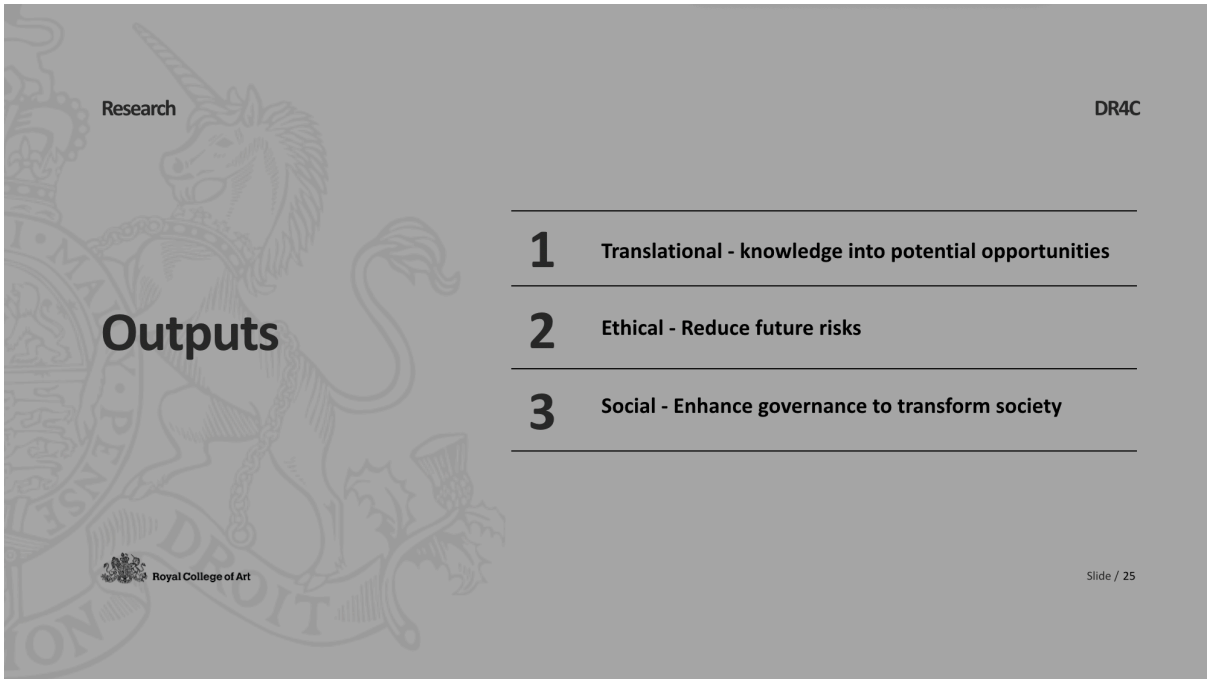

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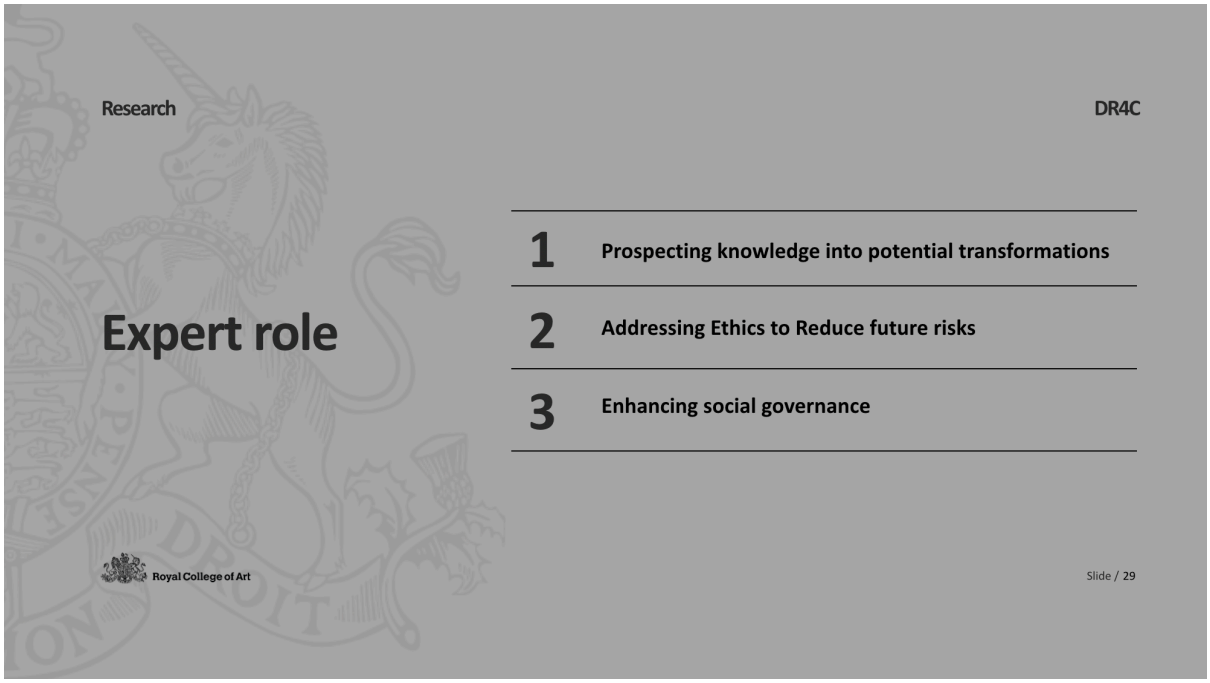

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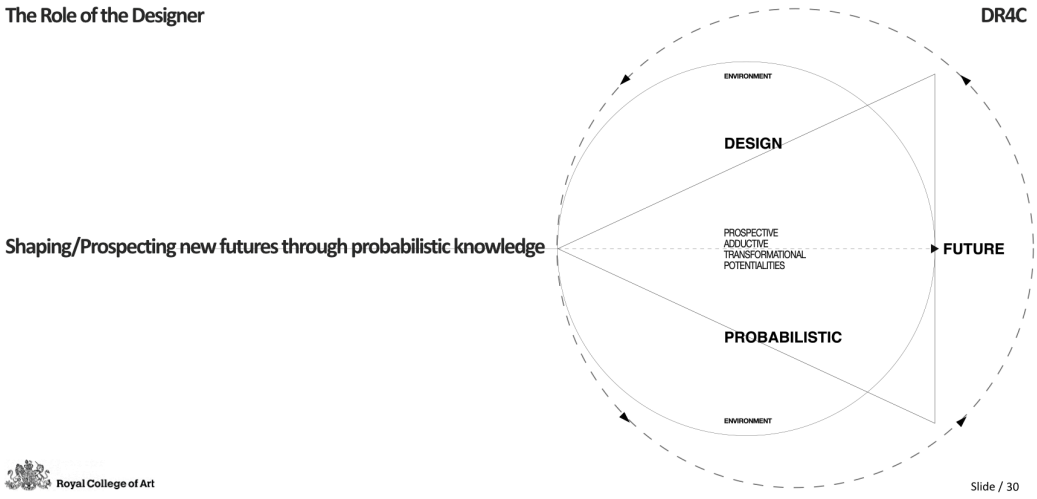

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Conclusions

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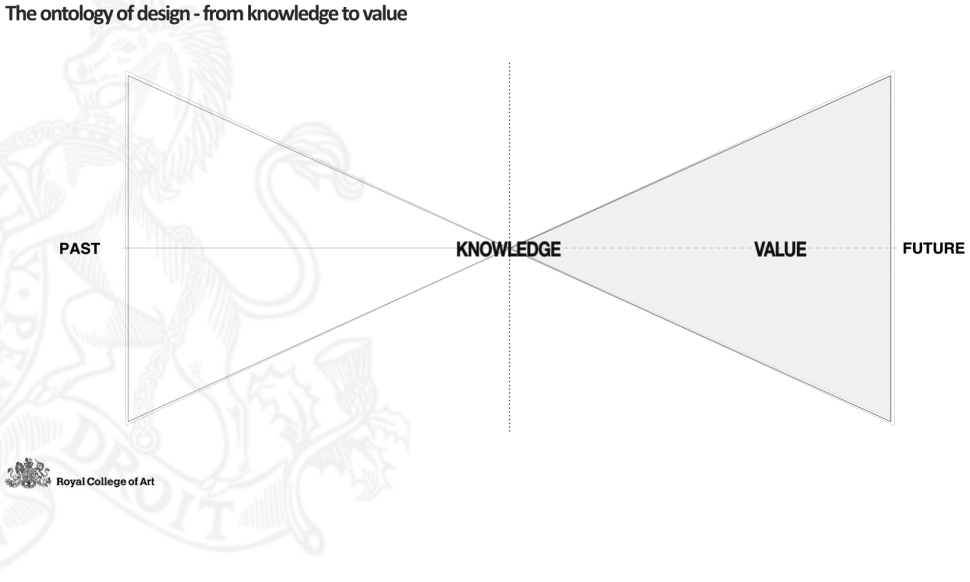

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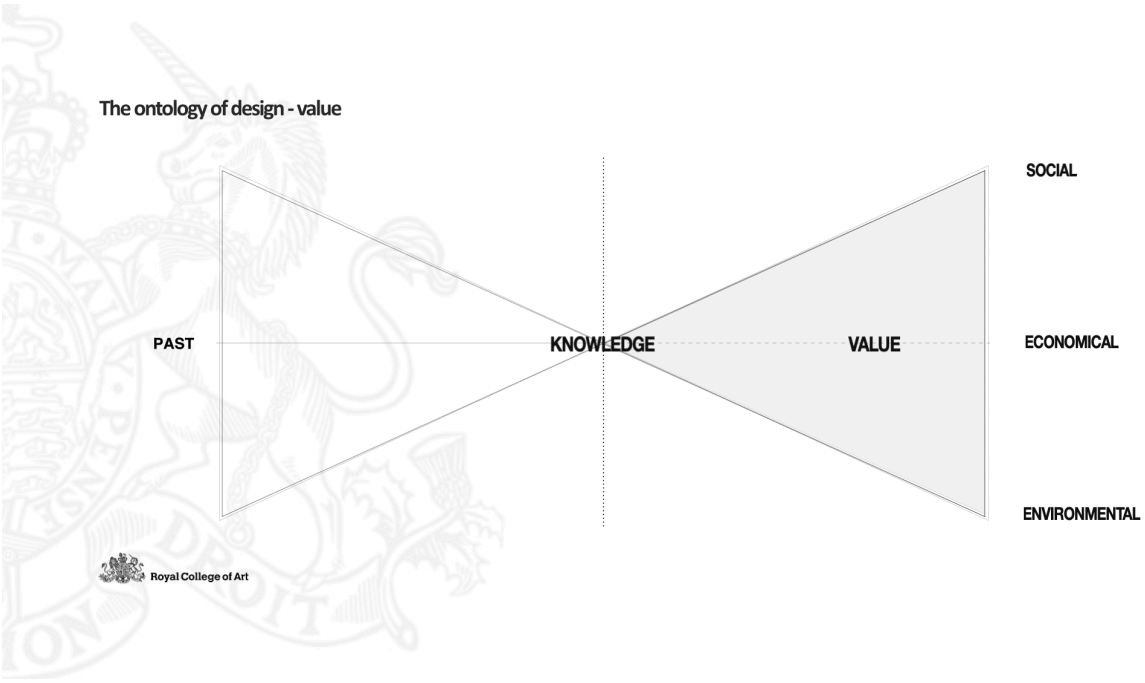

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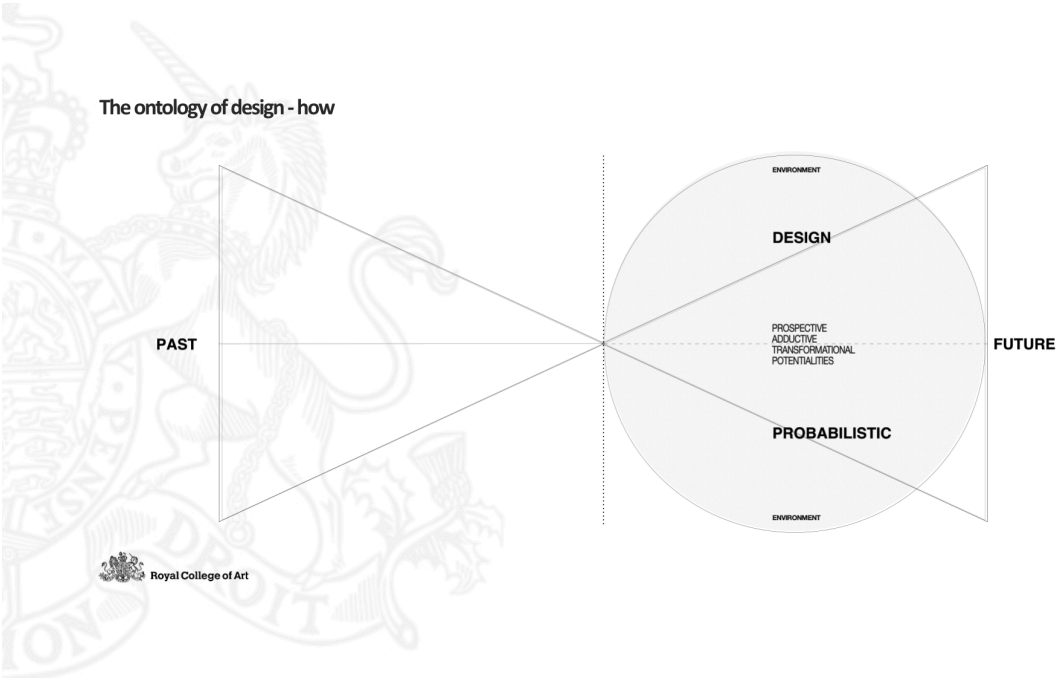

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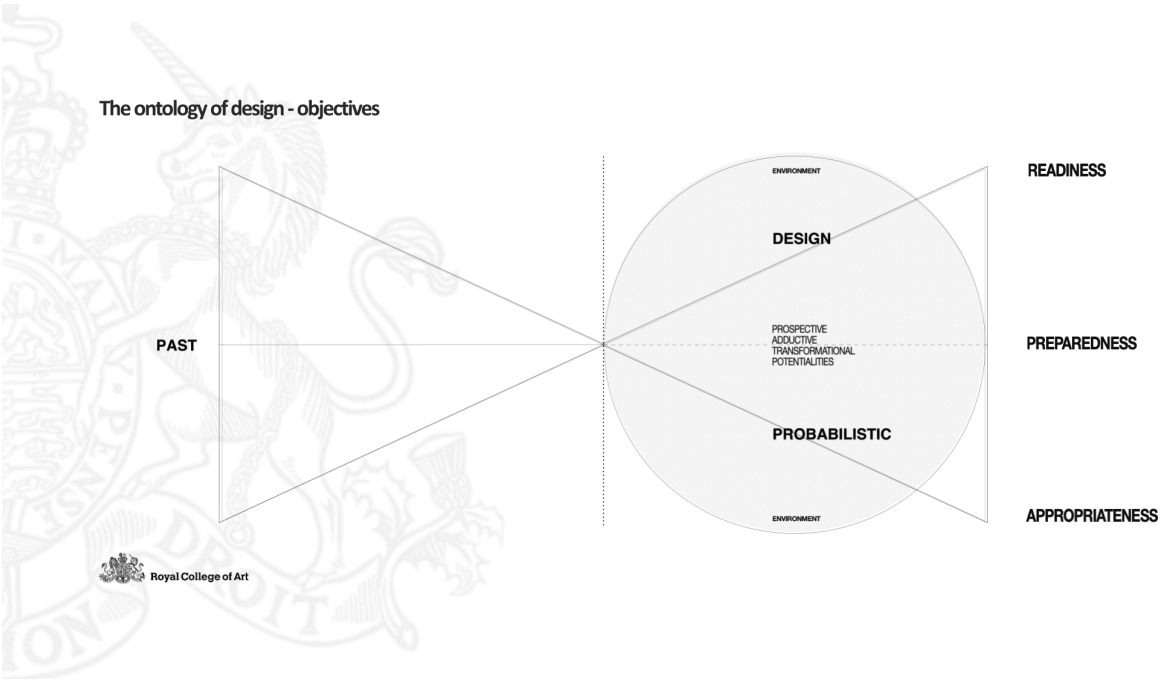

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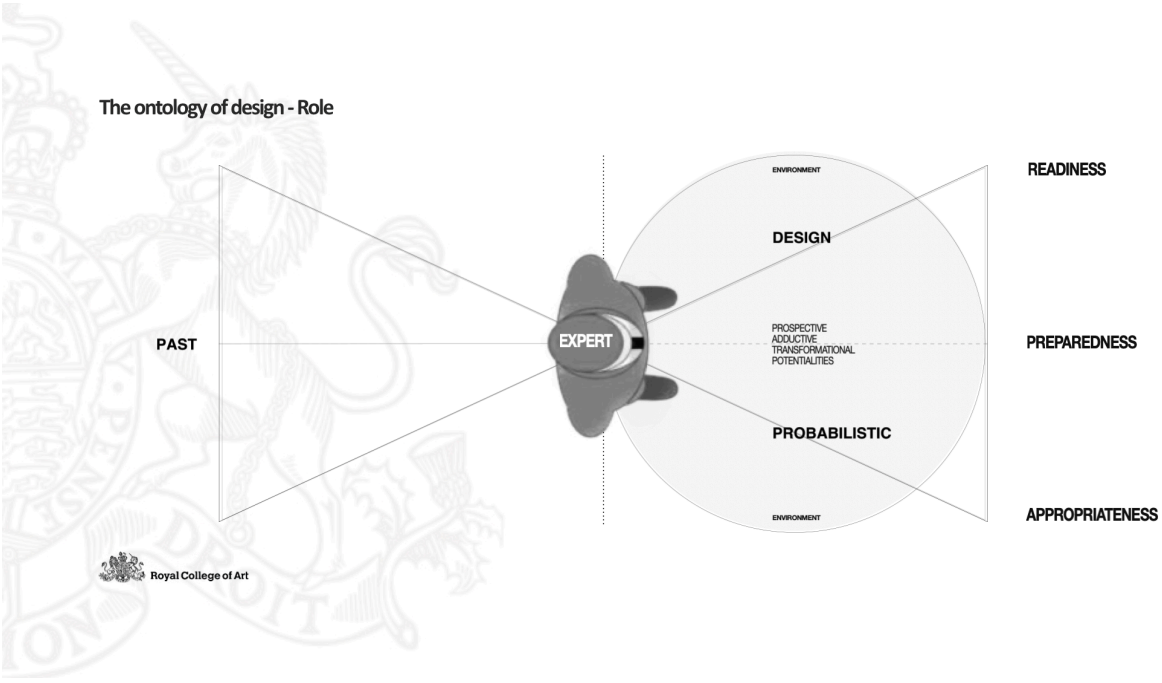

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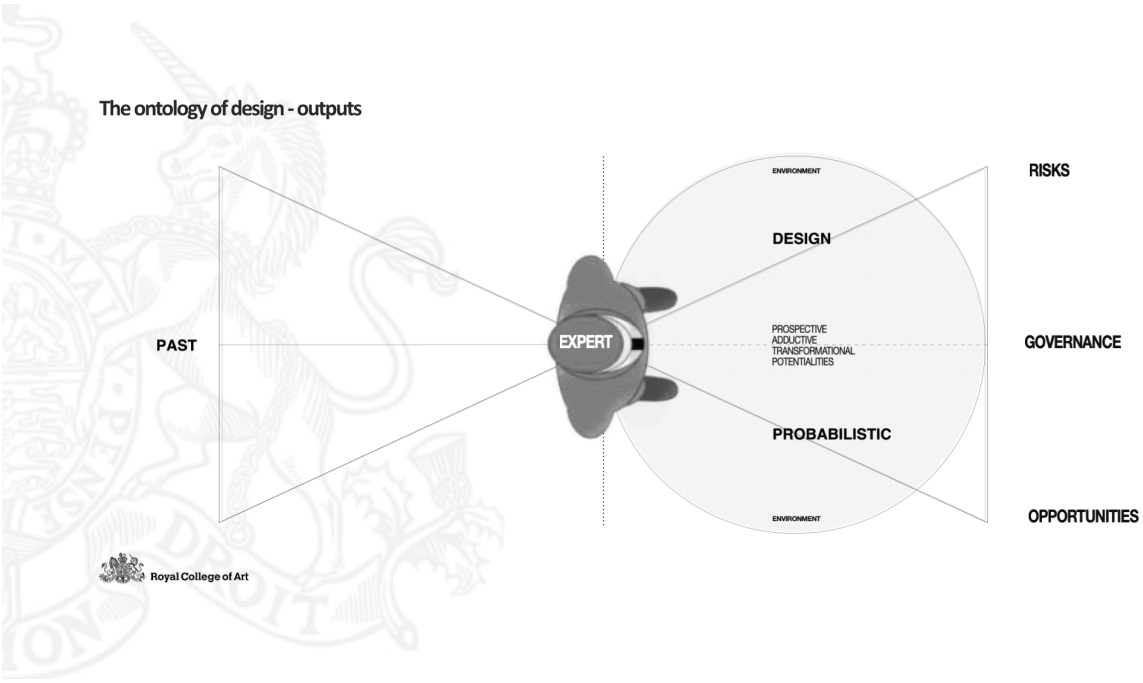

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