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**Meeting legislation and enhancing reputation:  
Working within the contextual pressures of regulatory, social, economic and  
other drivers to reduce building energy consumption.**

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Introduction  
Methods  
Context  
Sample  
Results  
Conclusions



- **European Union** nations are bound by the Energy Performance of Buildings Directive (**EPBD**) to reduce the energy consumption associated with their building stock.
- **United Kingdom** Climate Change Act (2008) has committed the UK Government to cut national CO<sub>2</sub> emissions by **80%** (from 1990 levels) by 2080.
- Delivered through **Part L** of the Building Regulations and statutory **Planning Policy**, voluntary schemes like **BREEAM**, mandatory certification schemes like **EPCs**, feedback programmes like **DECs**, incentives such as **CRCs** and suite of **Guidance** and **Benchmarks**



***“the impact of these [regulatory] innovations has been to reduce the anticipated energy and carbon dioxide emissions of building designs rather than the subsequent actual energy consumption.”***

(Day, 2007)

***“In my view, the problems are both a lack of information and a lack of effective use of the information that we do have.”***

(Bruhns, 2004)

***“Feedback is about feeding knowledge of outputs back into inputs in order to improve outcomes”***

(Bordass et al, 2006)



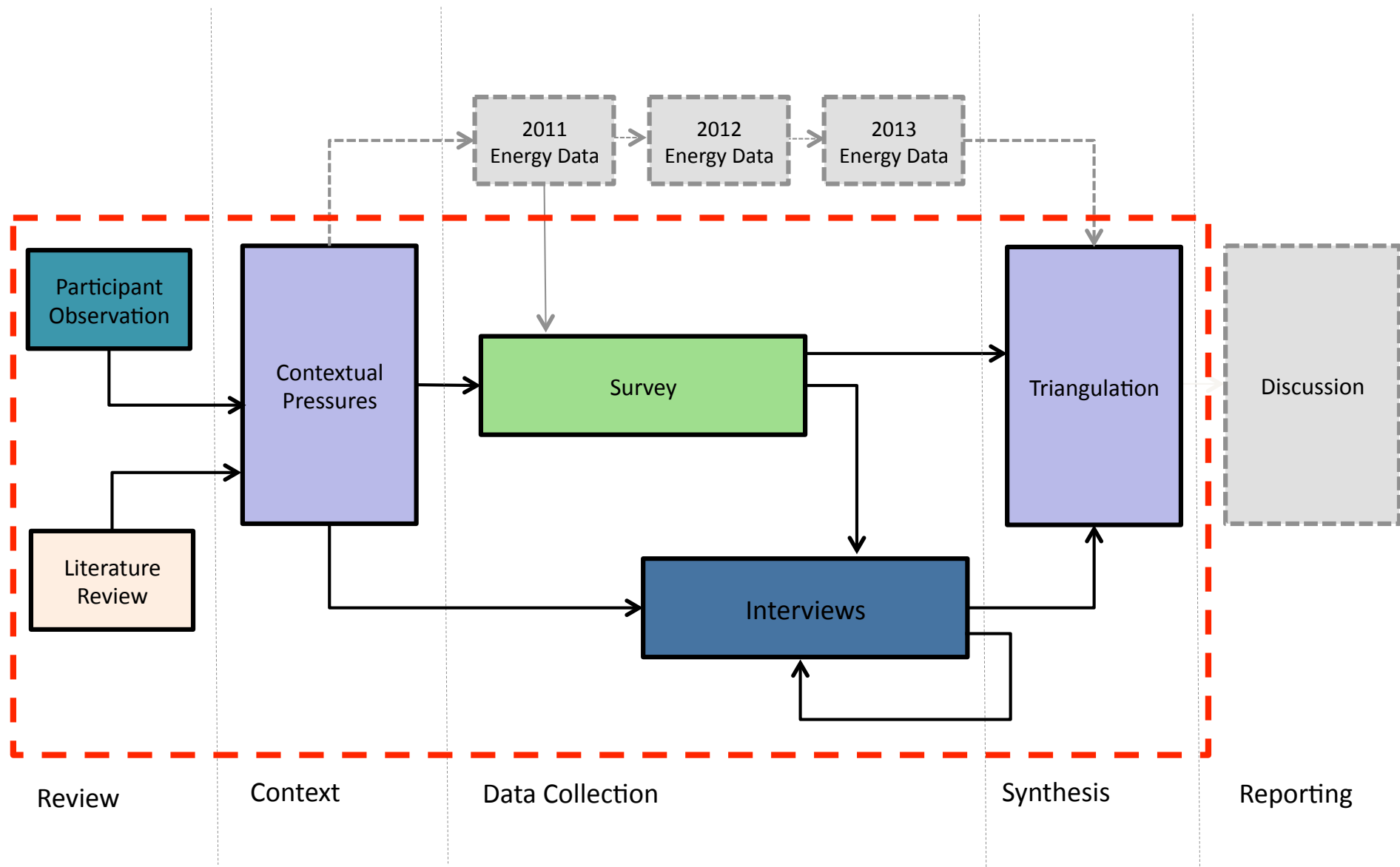
This paper aims to first:

define the **‘contextual pressures’** – the framework of regulations, incentives, guidance, policy, professional obligations and other factors that influence decision making and feedback use.

and second, answer two questions:

- a) Are there **contradictions** between the contextual pressures and the **aspirations or methods** used by actors working within them?
  
- b) Could these existing actual or perceived social, reputational or economic **levers** be used more effectively to meet commitments to reduce carbon emissions?





respondents **role** and organisation **characteristics**

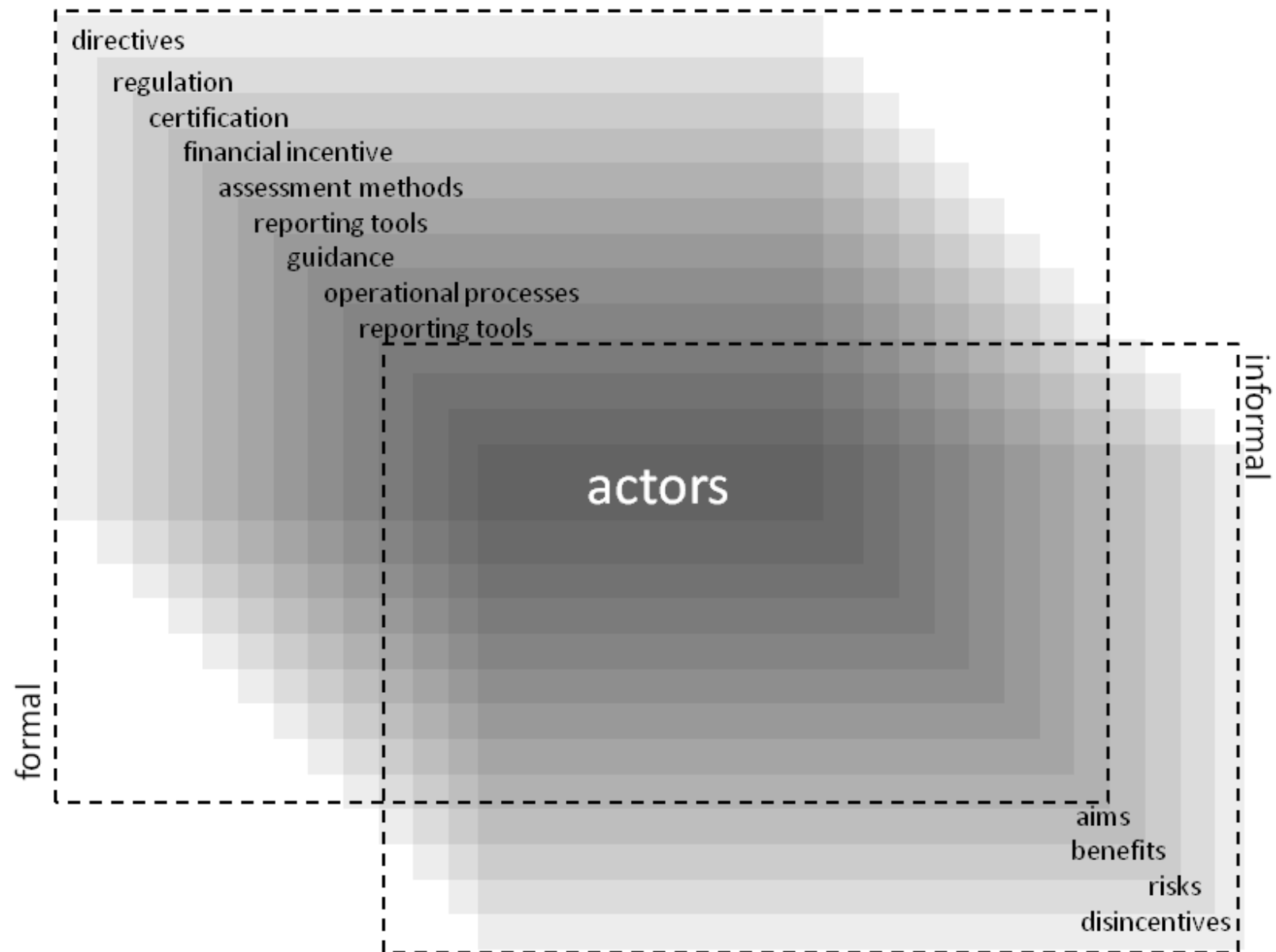
the **kind of work** respondents were involved in

how design and management stage **energy targets** were chosen and the **process of working** to meet them

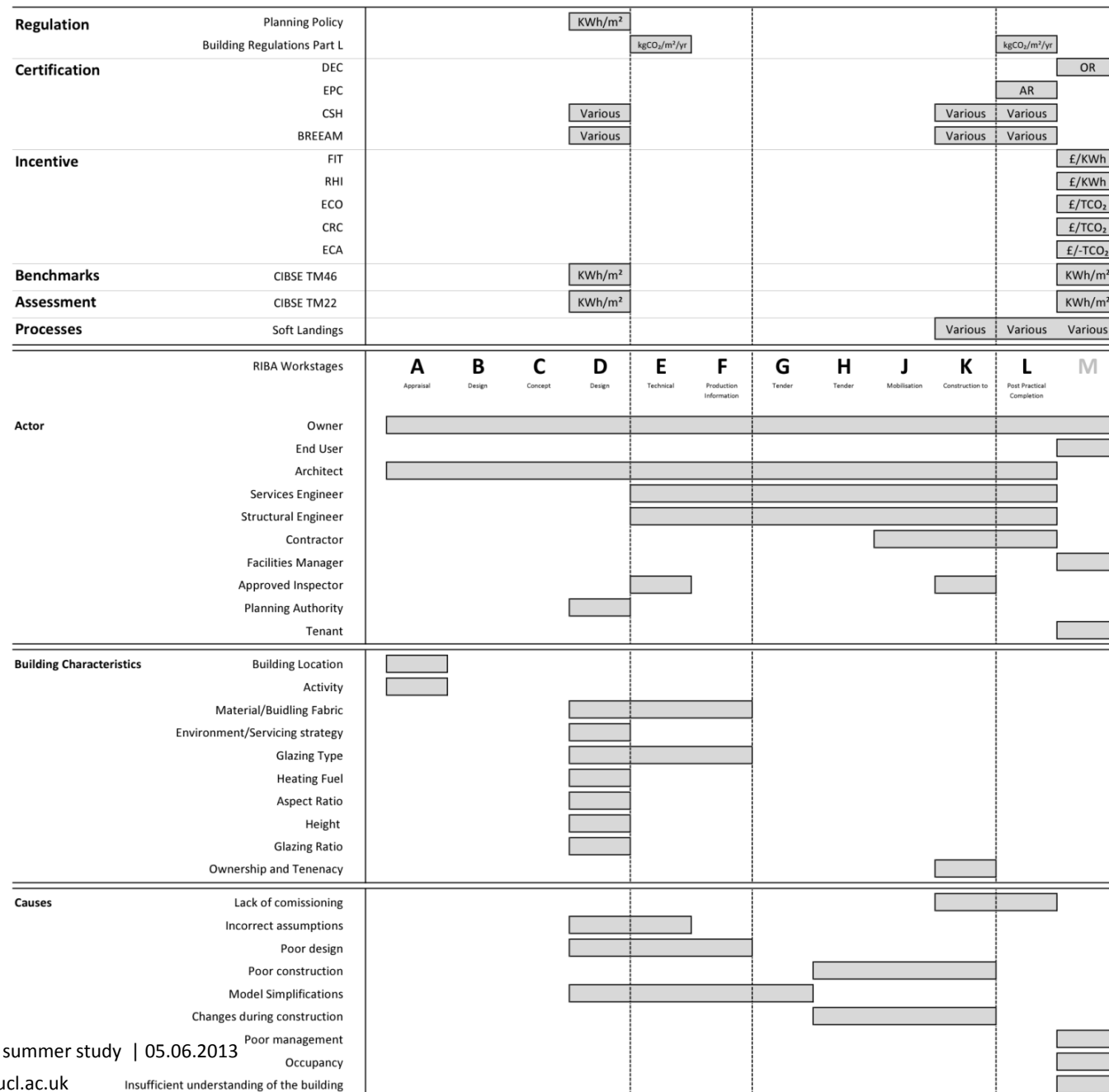
**what data** are collected in order to assess projects

what kind of **risks** actors felt most **impacted** on their work.





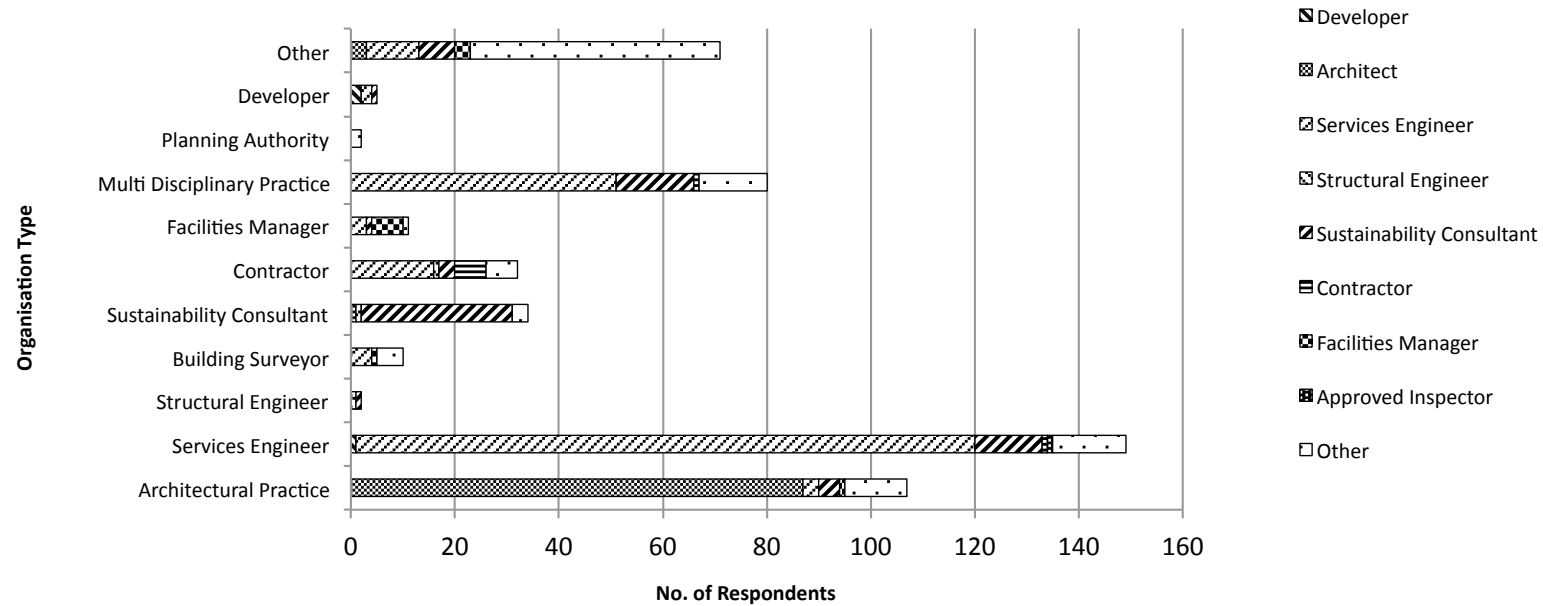




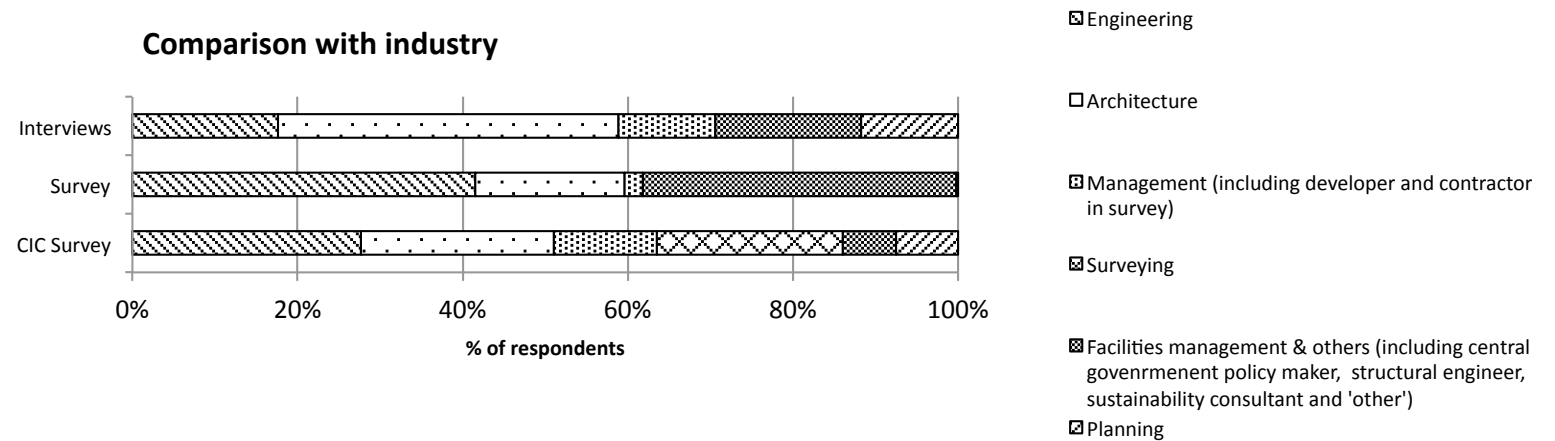
Aims	Benefits	Risks	Discencentives
Drive emissions down	Understand what a good building is	Litigation	No obligation
Meet clients needs	Connections	Increased costs	Reluctance to pay
Marketing	Interdisciplinary work	Reputational damage	Client doesn't see the benefit
CRC validation	Improve building knowledge		Lack of knowledge about POE
Justify capital spend relative to energy use	Visible indicator of action		No apparent immediate financial gain
Life cycle assessment	To prove or rate buildings		Fear of litigation
Raise profile of embodied carbon	Cost reduction		Commercial benefits not clear
Developing Innovation			Status quo of construction industry
Raising awareness of Carbon			
Tracking carbon			
Driving markets			

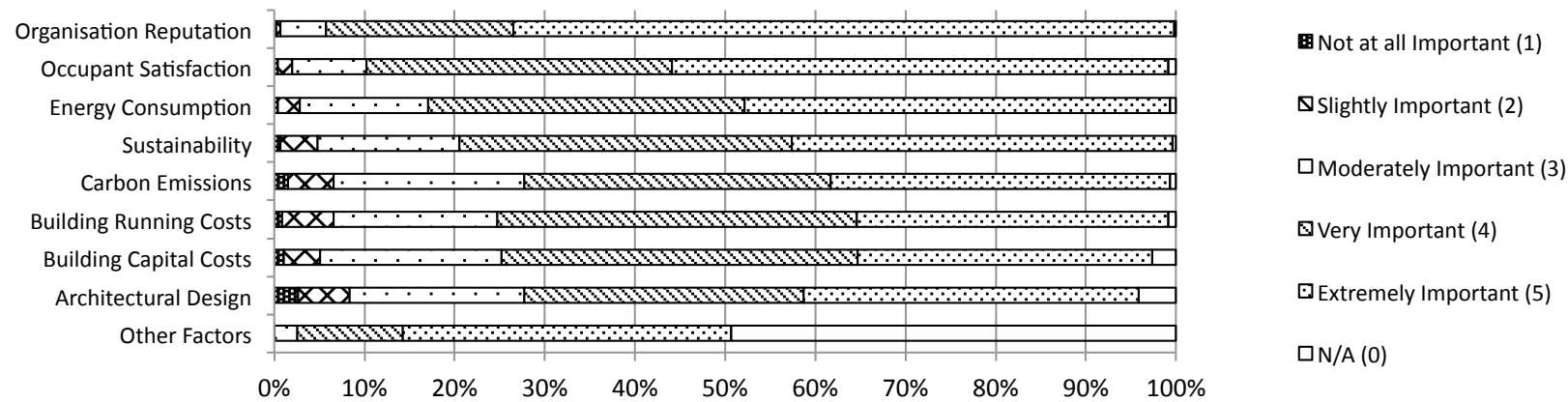


### Respondent Organisation and Role



### Comparison with industry



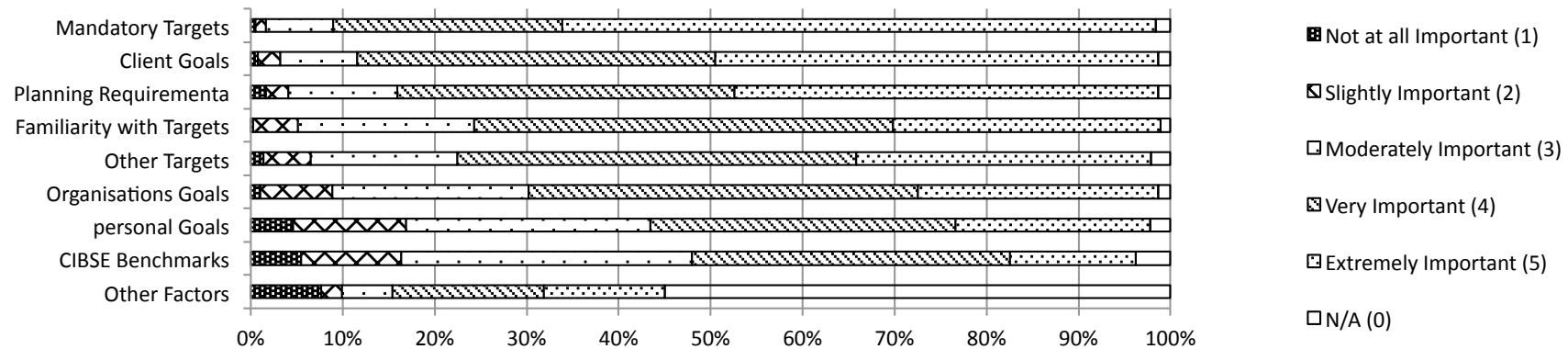


Factor	Not at all Important (1)	Slightly Important (2)	Moderately Important (3)	Very Important (4)	Extremely Important (5)	N/A (0)	Mean Score	Ranking	Total Responses	Missing
Organisation Reputation	1	2	23	95	334	1	4.66	1	456	47
Occupant Satisfaction	2	7	38	155	252	4	4.39	2	458	45
Energy Consumption	2	11	65	160	215	3	4.24	3	456	47
Sustainability	3	19	72	169	193	2	4.14	4	458	45
Carbon Emissions	7	23	96	154	171	3	3.99	5	454	49
Building Running Costs	4	26	83	182	158	4	3.99	6	457	46
Building Capital Costs	5	18	91	179	148	12	3.91	7	453	50
Architectural Design	12	26	88	141	169	19	3.82	8	455	48
Other Factors	0	0	2	9	28	38	2.36	9	77	426

***“We think it is a good thing that needs doing. We have a general in-house view though that the government and policy makers are asking the wrong people to deal with the problem.”***

*Engineer 001*



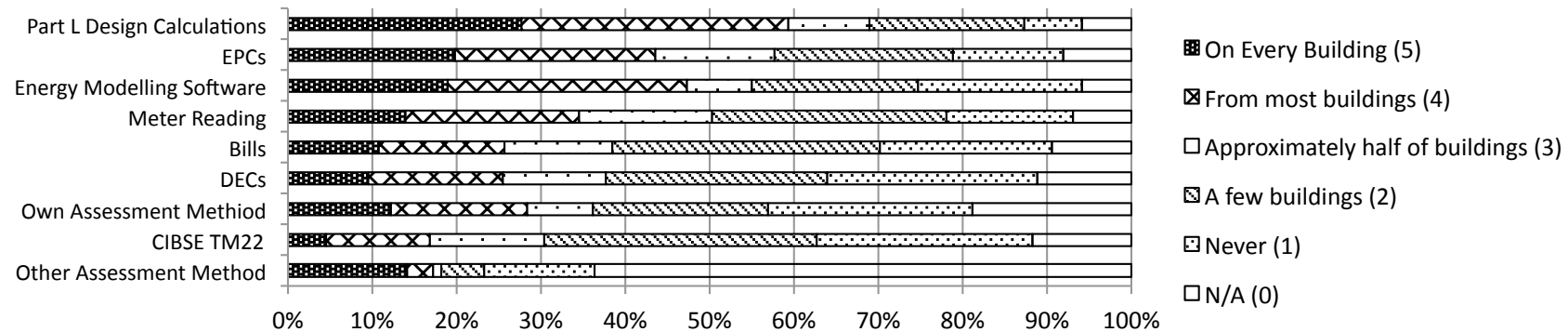


Factor	Not at all Important (1)	Slightly Important (2)	Moderately Important (3)	Very Important (4)	Extremely Important (5)	N/A (0)	Mean Score	Ranking	Total Responses	Missing
Mandatory Targets	2	4	27	92	238	6	4.47	1	369	134
Client Goals	3	9	31	145	179	5	4.27	2	372	131
Planning Requirements	6	9	43	134	168	5	4.19	3	365	138
Familiarity with Targets	1	18	71	169	108	4	3.95	4	371	132
Other Targets	5	19	59	160	118	8	3.93	5	369	134
Organisations Goals	4	29	79	157	97	5	3.81	6	371	132
Personal Goals	17	45	98	122	78	8	3.48	7	368	135
CIBSE Benchmarks	20	40	116	127	50	14	3.29	8	367	136
Other Factors	7	2	5	15	12	50	1.60	9	91	412

***“to some extents BREEAM is helping architects achieve, what you’d like to achieve anyway...because someone’s setting you these high targets...of set BREEAM or LEED ratings, you’ve got that in your pocket to kind of say well, ‘we need to do this’”.***

*05 Architect*





Factor	On Every Building (5)	From most buildings (4)	Approximately half of buildings (3)	A few buildings (2)	Never (1)	N/A (0)	Mean Score	Ranking	Total Responses	Missing
Part L Design Calculations	109	124	38	72	27	23	3.37	1	393	110
EPCs	76	91	54	81	50	31	2.92	2	383	120
Energy Modelling Software	74	111	30	77	76	23	2.90	3	391	112
Meter Reading	54	80	61	108	58	27	2.70	4	388	115
Bills	41	57	49	121	78	36	2.36	5	382	121
DECs	36	60	46	99	94	42	2.25	6	377	126
Own Assessment Method	44	58	28	75	87	68	2.15	7	360	143
CIBSE TM22	17	46	51	121	96	44	2.03	8	375	128
Other Assessment Method	14	3	1	5	13	63	1.09	9	99	404

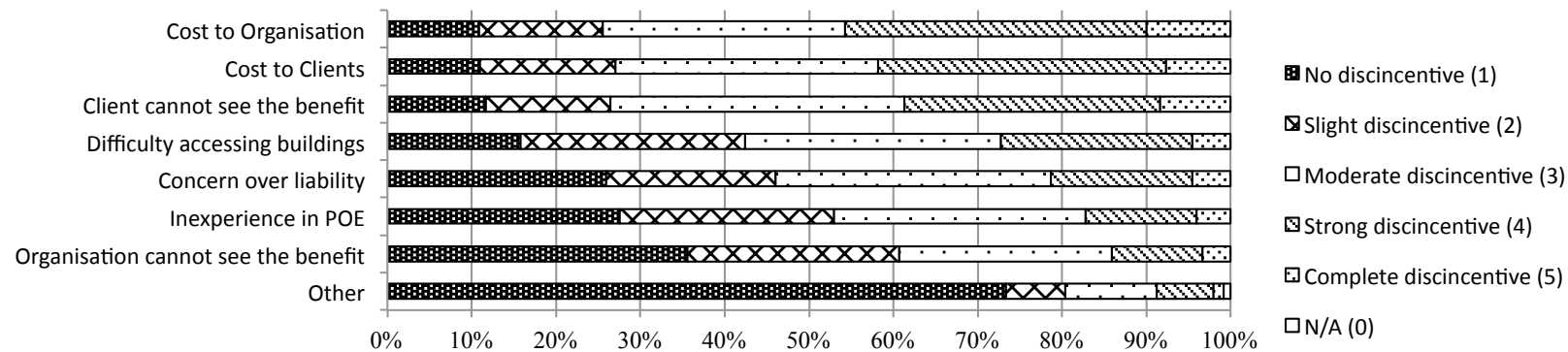
***“we found tightening up the fabric actually had very little effect on the overall performance of the building whereas when we trimmed down the lighting loads that had a massive effect on the building”.***

*Engineer*

***“SBEM was then flipped on its head and used as a method to see what you could not do but still pass.”***

*Architect*





Factor	No disincentive (1)	Slight disincentive (2)	Moderate disincentive (3)	Strong disincentive (4)	Complete disincentive (5)	N/A (0)	Mean Score	Ranking	Total Responses	Missing
Cost to Organisation	37	50	98	122	34	0	3.19	1	341	162
Cost to Clients	37	54	105	115	26	0	3.12	2	337	166
Client cannot see the benefit	39	49	116	101	28	0	3.09	3	333	170
Difficulty accessing buildings	52	88	100	75	15	0	2.74	4	330	173
Concern over liability	85	66	107	55	15	0	2.54	5	328	175
Inexperience in POE	88	81	95	42	13	0	2.41	6	319	184
Organisation cannot see the benefit	116	82	82	35	11	0	2.21	7	326	177
Other	176	17	26	16	3	2	1.53	8	240	263

***“we are really struggling because our own internal sustainability groups, er they want to demonstrate in our annual sustainability report how our intelligent and efficient design has saved our clients carbon emissions... it’s kind of a double edged sword, it could brilliant or the client could turn round and say well hang on you haven’t given us the ... building we paid for!”***

Engineer



## Decision making

*“good decisions need good information”*

## Innovating

risk adverse local authorities, clients and practitioners happy to *“regurgitate previous designs”*

## Procurement

atomised procurement teams means communication and continuity of personel and information are often not possible.





**Costs** (or energy) not carbon

**Responsibility** disconnected from **ability**

minimum **standards** can curtail **innovation**

Actors **obliged** to do things they know to be detrimental

No strong **reputational benefit** from creating a low energy buildings

**Barriers** outweigh current **benefits**



**Certification can be a lever** if used by motivated interested practitioners

Increasing **reputational benefits** could encourage less engaged actors

Existing **evaluation tools** are used in **innovative** ways

Informal **feedback loops** exist

Mitigating **perceived risks** – culture shift in industry



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