CIWM

CIWM Report 2014

The Circular Economy: what does it mean for the waste and resource management sector?

Foreword from the CIWM president, John Quinn FCIWM

When I was asked to suggest a theme for my Presidential report, the one I immediately thought of was the Circular Economy.

At the time I was acutely aware of the fact that the theory of the Circular Economy had been addressed by many other august organisations in the recent past and that there could be a perception that another piece of research by CIWM might be deemed superfluous. This in my mind was beside the point, as the intended scope was not really to cover the theory, but to inform decisions about the practice and particularly the future role of CIWM in the evolving Circular Economy landscape. My view then (and more so now) was that there is a huge imperative for CIWM to play a central role in leading the sector, to build capacity and influence in an area seen by many practitioners as a vague concept, presenting a threat rather than an opportunity to the sector. I wanted to stimulate debate about CIWM's potential role in 'operationalising' the Circular Economy for the sector with a view to maintaining the organisation's relevance to members as we go forward.

Accordingly, I am very pleased to be associated with the commissioning and launch of this significant research into CIWM members and the wider industry thinking about the Circular Economy.

The research shows as expected that it means different things to different people. It has covered a broad spectrum of interests in the waste and resources sector across the five countries of these islands. It has included a wide range of organisations across the industry and employees from CEOs to operational staff.

It provides CIWM with an important insight into the understanding of the Circular Economy and provides for us a valuable building block and a positive opportunity in plotting our direction in the future.

I hope that readers will find the research useful in their daily work as a point of reference and information for how individuals and organisations are developing their own thinking and practice in terms of the Circular Economy.

For the Institution, it will provide a springboard for the corporate thinking of the organisation. I can assure readers that in my year I will make it my business to ensure that the expectations of stakeholders for leadership from CIWM, so clearly articulated in the research, will be translated into action as the Institution progresses. I hope to report further on that issue during the course of my year in office.

Finally, I would like to thank the authors Ray Georgeson and Dr Jane Beasley for their input and indeed their forbearance (with me in particular) in compiling this work.

I would also like to thank the Scientific and Technical Committee of the Institution which acted as Client and Commissioner for this piece of work, prepared the brief, and managed the process on behalf of the organisation. In particular I want to acknowledge the very valuable input of Professor Margaret Bates, Advisory Group & S&T Chair (and Junior Vice President), Tracy Moffatt, Technical Manager at CIWM, and the contributions of Martin Hogan, Cathy O'Brien, Stuart Reynolds and Keith Riley.

October 2014

Introduction to the report

This report is the product of a research project commissioned by the Chartered Institution of Wastes Management (CIWM) in April 2014 from a Yorkshire-based consultancy consortium of Ray Georgeson Resources Ltd (RGR), Beasley Associates Ltd and Green Gain Ltd.

The desired intention of CIWM was to seek a deeper understanding of and preparedness for the circular economy from across a broad range of the waste and resources industry, especially focused on the CIWM membership. This would provide a report to be launched by the Institution's incoming President John Quinn at his Inauguration.

Executive summary

In the past twenty years, the emphasis of the waste and resource management sector has moved from landfill to recycling, and there is now a growing and increasingly powerful argument that the Circular Economy will increasingly dominate over the next decades. This will involve substantial changes to the culture, principles and practice of the current waste and resources sector and bring new challenges and opportunities. It is a framework that extends well beyond the traditional boundaries of CIWM's sphere. CIWM is at the heart of the waste and resources sector and it is vital that it understands the concepts and implications of the circular economy in order to maintain and enhance its leadership role in serving the interests of its members and fulfilling its Royal Charter.

Recognising this, CIWM identified a need to gain insight into the understanding of and preparedness for the circular economy, both across the CIWM membership and the wider waste and resources industry. Therefore research was commissioned to provide both a quantitative and qualitative insight of the membership and beyond, using an online tool to secure views and opinions and structured telephone interviews with a broad range of industry leaders from across England, Northern Ireland, the Republic of Ireland, Scotland and Wales.

The report presents the findings in detail and the main features of the project, including an overview of the approach taken to conduct the research and the main findings and recommendations are identified below.

1. An electronic online survey was completed by 612 respondents, and 54 detailed interviews were completed with industry leaders. 440 respondents stated they were CIWM members, representing 8% of the total membership in July 2014.

2. With regard to the online survey, over 80% of respondents stated that they are very or reasonably familiar with the term 'circular economy'.

3. One-third of survey respondents state that the term is used frequently within their organisations, and of those stating this, they are then split fairly evenly (36% yes; 44% no) in their view as to whether the term as used is understood in their organisations.

4. The majority of survey respondents support the statements linking the circular economy to becoming more resource and energy efficient and consider that it is about replacement of the linear economy. In the same vein, the majority of respondents also agree that the circular economy is about designing out waste and reducing the need for virgin resources.

5. Survey respondents were more split on the statements around circular economy as a repackaging of sustainability, whether it is about achieving zero waste, and whether it is a radical new approach to the way we make products. They were also split on whether it is much the same thing as closed loop recycling.

6. Survey respondents firmly stated that they felt that the circular economy is about increased recycling of products and materials and also firmly disagreed that the circular economy is simply a theoretical principle that cannot be put into practice.

7. Both survey respondents and industry leaders interviewed have mixed views about the current status of the circular economy, ranging from cynicism that it is purely fashioned by marketing and policy makers with little new substance, through to genuine excitement that it is the future for the waste and resources industry.

8. With this current lack of clarity, leadership remains a major question. Both survey respondents and industry leaders interviewed expressed very mixed views on where leadership was coming from, many suggesting there was little leadership and that it was fragmented. However, unprompted recognition was strong for the Ellen MacArthur Foundation (and industry they work with), WRAP/Zero Waste Scotland and the European Commission.

9. A majority of respondents from both the survey and detailed interviews see the circular economy as an opportunity with a significant minority seeing real challenges and threats. Nearly all agree that it will impact upon them, either way.

10. Despite this, there is little evidence of planning for the circular economy. In the survey there was a low response to the question linked to planning, with only 27% of respondents saying they are doing any even modest level of planning for the circular economy.

11. Lack of awareness and poor clarity of terminology were highlighted as key hurdles to developing the

circular economy by many respondents in both the survey and the interviews. Although a range of challenges were identified, these stood out as barriers that are hampering interest and buy-in within organisations.

12. Survey respondents indicated that they felt that few organisations or sectors were well prepared for the circular economy. Scottish and Welsh policy makers, research organisations, reprocessors and consultancies were seen as best prepared. Sectors regarded by those responding as least prepared were local authorities, English policy makers and retailers.

13. CIWM is seen by most survey respondents as being insufficiently prepared for the circular economy, as indeed are most organisations in the sector. However, survey respondents and industry leaders clearly support the leadership shown by CIWM in initiating this work and indicating a desire to respond to the emerging agenda. Very few respondents suggested CIWM had no role to play in the circular economy; the message was one of willingness to support and mandate CIWM to make changes.

14. Survey respondents and industry leaders identified a range of potential support from CIWM that could be developed, including improved training and communications, practical case studies and stronger links with the leaders in the circular economy arena.

15. All industry leaders interviews pointed to a commonly shared view that despite the concerns, reservations or even cynicism of some about the circular economy being simply a fad and a bandwagon, this is the start of an exciting period. Respondents felt that we could be about to experience another real step change in our sector, a generational change that will look very different to the one which saw the start of the (still incomplete) transformation of the waste management industry from landfill-led to resource recovery-led.

16. Interviewees' willingness to engage on the practical issues and challenges and their desire largely to encourage CIWM in responding to members' needs for support in understanding the circular economy and its implications is seen as a welcome step. Rather than see their comments as criticism of the Chartered Institution they are more an acknowledgement that we all need to do more to prepare and adapt and that CIWM has the potential to be a real catalyst here.

17. It was clear from the interviews and the survey that if the circular economy is to be a permanent change and even a paradigm shift, not just a marketing and policy makers' fad, then the lack of clarity and direction makes it even more important for the CIWM to be a facilitator, networker, disseminator and catalyst at the heart of the unfolding debate.

18. CIWM has an important role to play as one of a wider group of stakeholders, such as Governments and their agencies, retailers, designers, manufacturers and researchers. Together our task is to secure the benefits of the circular economy as well as raise the profile of the value of the circular economy. Based on our reflection of the insight provided by many leading figures in the waste and resources sector, we offer CIWM for consideration five key recommendations:

    - Develop, lead and co-ordinate a Circular Economy Action Group with a focused remit to engage internally with the waste and resources sector and externally with all key players up and down the supply chain, which will deliver an Action Plan with a routemap assisting organisations to drive towards the transition to a circular economy.

    - Develop a Circular Economy Policy Statement that clearly signals to outside stakeholders in the resources supply chain the intent of the Chartered Institution with regard to its role in the development of the circular economy.

    - Identify opportunities to embed the circular economy into CIWM's day to day activities, structures, strategies and future planning.

    - Utilise all communication channels such as the website and journal and social media, focusing on the potential role of the CIWM as a catalyst and facilitator, for engagement and dissemination of circular economy developments and practice within the whole CIWM membership.

    - Invest further time and support in initiatives, such as the RSA's The Great Recovery, linking designers and other actors in the supply chain with waste and resource managers, by providing a combination of corporate support from CIWM and development of a network of waste and resource management organisations willing to contribute.

Rationale for the report

The circular economy concept has been widely discussed and analysed in recent years and has rapidly gained credibility in the waste and resources sector and also amongst various large businesses. From its theoretical and practical foundations in the 1970s with the work of Professor Walter Stahel it has more recently hit the mainstream of eco-industrial thinking. At the outset, this was largely due to the work of the Ellen MacArthur Foundation, but others in the UK have also advanced the theory and practice of the circular economy, notably WRAP, the Governments in Scotland and Wales, The Great Recovery project at the RSA, and the Green Alliance. The circular economy is a hot topic within this sector, frequently discussed and debated.

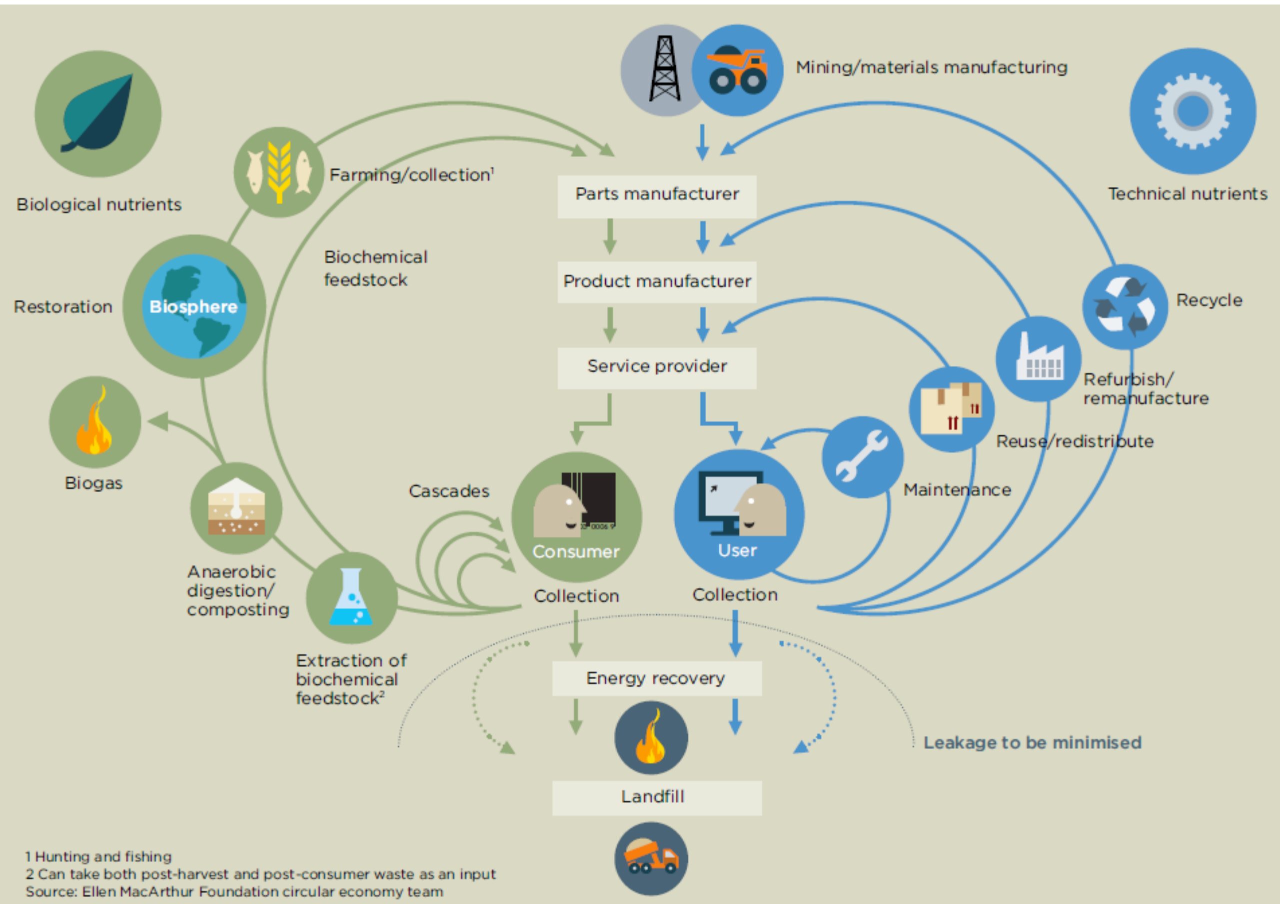
The core vision of the circular economy is of replacing the current largely linear economy of 'take, make and dispose' with one in which resources circulate at high value, avoiding or reducing the need for virgin resources. The main drivers for the circular economy are increasing price volatility and supply restrictions of virgin resources, policy drivers such as producer responsibility regulations and, arguably, a changing consumer culture.

The diagram below shows a range of different processes and material flows in a circular economy. The UK waste and resources sector has been very active in the outer circles in the diagram (recycling, composting, anaerobic digestion etc) and some progress is being made towards improvements in material recycling such as improving recyclate quality and moving from downcycling to closed-loop recycling. This can be presented as good progress towards the circular economy.

However, the more visionary aspects of the circular economy, involving new product lifecycle supply chains and new business models focused on the elimination of waste in the traditional sense, could bypass the waste and resources sector in its current form. Other circular economy activities such as repair, refurbishment and remanufacture are not significant in the waste and resources sector at the moment but could become so in the coming years.

An important issue for CIWM here is the extent to which its current members can adapt to this new resources landscape and how CIWM might develop its membership to draw in organisations already active in the wider circular economy but who do not currently see themselves as part of this sector.

The circular economy concept is a big idea that allows widely differing interpretations in how it might be implemented. Organisations throughout the sector will have differing views about what it means, how it might be progressed and their own current and future roles in advancing the circular economy.



The Circular Economy Butterfly Diagram: value recovery for biological and technical materials.
Credit: Ellen MacArthur Foundation

This research was commissioned to help CIWM understand the different views within the waste and resources sector across England, Scotland, Wales, Northern Ireland and the Republic of Ireland. The research seeks to reveal what the broad spectrum of organisations and individuals in this sector understand by the term 'circular economy' and how their attitudes and opinions vary across the different parts of the sector and across the five countries. The research seeks to provide CIWM with an insight into what infrastructure, policy or awareness support the sector needs and what opportunities are available in relation to the circular economy. It is hoped it will provide a foundation for CIWM's future leadership in this area.

Methodology

The primary research for this report consisted of two key elements: a short electronic survey designed to elicit a wide representative response from across the CIWM membership and wider industry, and a series of structured telephone interviews with a wide range of industry leaders. Together they provide breadth and depth of insight across a set of key questions about attitudes to and preparedness for the circular economy. Appendix One lists the Industry Leaders interviewed, and the detailed structure and questions for both sets of interviews are available in Appendix Two and Three.

We appreciate that the relative simplicity of this survey may not satisfy the demands of some analysts and commentators, but our collective judgement was speed and simplicity in order to generate a strong response from the CIWM membership was justified and that some complexity was sacrificed for this. It gave us the ability to rapidly produce a wide snapshot of the membership's views.

We also acknowledge that the term 'circular economy' lacks a clear unified definition that all parts of our industry share and the dilemma we faced was eloquently summarised by one of our correspondents, Dr Dominic Hogg of Eunomia:

> *"..the language of 'the circular economy' appears to suggest that it is something that can be described as a single, tangible entity, whereas the documents describing it are properly best considered as setting out a set of principles which would 'make the economy more circular'. It's not easy, therefore, to consider what 'A circular economy' might look like other than one which has the principles applied far more widely than they are today. At what point does the extent to which those principles are applied enable us to describe the economy as having 'become' circular? That's a very difficult question to answer."*

The telephone survey was designed to generate deeper insight using a structured set of questions to facilitate a conversation around the subject of circular economy. We sought to ensure a broad range of industry leaders were interviewed and a long list of names was approved by the project's Advisory Group. The practicalities of securing interview time from busy industry leaders meant that the long list of 100 was used to ensure the target of 50 interviews was completed to schedule, whilst seeking to maintain a spread across interests and geography.

A total of 54 interviews were completed. In terms of geographical breakdown by primary location, 20% of interviews were with leaders in Northern Ireland, the Republic of Ireland, Scotland and Wales with 80% representing leaders with a UK remit or an English base. The interviewees come from a broad range of waste and resources interests, including major waste and resource management companies, compliance schemes, retailers, local government, consultancies, designers and think tanks, academia, reprocessors and associations from industry, local government, recycling and the third sector. The deliberate focus was on representation from key areas of the existing waste and resources sector in order to make an assessment of the present state of our sector, not those we may find ourselves working with in the future.

The research was overseen at CIWM by their Technical Manager Tracy Moffatt, assisted by an Advisory Group chaired by Professor Margaret Bates of the University of Northampton and Chair of CIWM's Scientific and Technical Committee. This group met in person and by telephone and provided advice and guidance as well as sign off for surveys and approaches to industry leaders. The analysis of the research is entirely our own, as are the opinions expressed in the Reflections section and the Recommendations that complete the report.

The electronic survey was designed and distributed using Survey Monkey and respondents targeted using our own Industry Leaders Database, promotion to the CIWM membership using CIWM News Online, and two direct e-mailings to the CIWM membership. The survey generated a total of 612 respondents. Table 1 shows 440 respondents identified themselves as members of CIWM, representing 8% of the Chartered Institution's membership, spread across the membership grades as noted in Table 2.

Table 1 – Respondents and CIWM membership

Are you a member of CIWM?		
Answer Options	Response Percent	Response Count
Yes	88.5%	440
No	11.5%	57
answered question		497
skipped question		115

Table 2 – CIWM Membership grade profile

What grade of membership of CIWM are you?		
Answer Options	Response Percent	Response Count
Life	2.3%	10
Fellow	6.8%	30
Corporate	50.3%	221
Licentiate	2.1%	9
Graduate	6.6%	29
Associate	17.5%	77
Technician	0.7%	3
Student	2.7%	12
Affiliate	8.9%	39
Retired	2.1%	9
answered question		439
skipped question		173

CIWM required the electronic survey to adequately represent views from across all parts of the United Kingdom and the Republic of Ireland. We asked respondents to state their primary locus of activity, recognising that some have a pan-UK remit and that there would be some overseas respondents. The geographical breakdown in Table 3 indicates a broadly representative balance of respondents across the five territories when compared to the CIWM membership profile. CIWM's own membership profile is in fact 82.1% designated as England/UK and so this survey under-represents England as a location and has a more widespread of views from Northern Ireland, the Republic of Ireland, Scotland and Wales.

We also asked respondents to indicate the type of organisation they were actively involved in, whilst acknowledging that some respondents answer solely as individuals. We also acknowledge that, throughout this survey's results, we can only report the views of respondents and that these do not necessarily represent the view of whole organisations. It can, by nature, only be a snapshot of views that broadly reflect the range of interests and activities within the waste and resources sector. The breakdown in Table 4 shows the wide range of organisations represented, and the weighting of the cohort towards local government, consultancies and the private sector, again very broadly in line with the CIWM membership profile.

To illustrate the types and range of jobs of respondents, Figure 1 highlights the most popular in a word cloud. It illustrates a good range of strategic and operational level respondents.

Figure 1 – Word Cloud of respondents' job type

Table 3 – Geographical breakdown of respondents, by primary location

Where is your organisation mainly based?			
Answer Options	Response Percent	CIWM profile comparison	Response Count
England	66.7%	82.1%	408
Wales	6.0%	3.5%	37
Scotland	9.2%	6.1%	56
Northern Ireland	5.9%	2.0%	36
Republic of Ireland	5.2%	2.8%	32
Other (please specify)	7.0%	3.5%	43
answered question			612
skipped question			0

Table 4 – Organisation breakdown of respondents

What is your organisation type?			
Answer Options	Response Percent	CIWM profile comparison (selected)	Response Count
Local Authority	24.8%	31.5%	152
Consultancy	22.1%	21%	135
Research Organisation	1.1%		7
University or College	5.1%	1.8%	31
Waste Management Company	9.0%	18.5% *	55
Reprocessor/Recycling Company	4.2%	2.5% *	26
Collection & Logistics Provider	0.8%		5
Waste Brokers	1.5%		9
Government (Policy Makers) - England	1.0%		6
Government (Policy Makers) - Wales	0.8%		5
Government (Policy Makers) - Scotland	0.7%		4
Government (Policy Makers) - Northern Ireland	0.3%		2
Government (Policy Makers) - Republic of Ireland	0.0%		0
NGO	1.8%		11
Retailer	0.2%		1
Manufacturer	3.6%		22
Designer	0.2%		1
Engineer	1.3%		8
Trade Association	1.3%		8
Environmental Regulator	7.2%		44
Other (please specify)	13.1%		80
answered question			612
skipped question			0

** these two categories may not be fully comparable - CIWM's 18.5% category is designated 'private sector' which would include others as well as waste management companies, and their 2.5% category is designated 'recycling' and does not include reprocessors. Taken broadly together the combined categories indicate a slight under-representation of private sector industry views. We have sought to balance this with representation of private sector industry leaders in our telephone interview cohort.*

Findings: electronic survey

Respondents showed a high level of familiarity with the general term 'circular economy' with one third stating they were very familiar and just under one fifth stating they were not very or not at all familiar (see Table 5).

Table 5 – Familiarity with the term Circular Economy

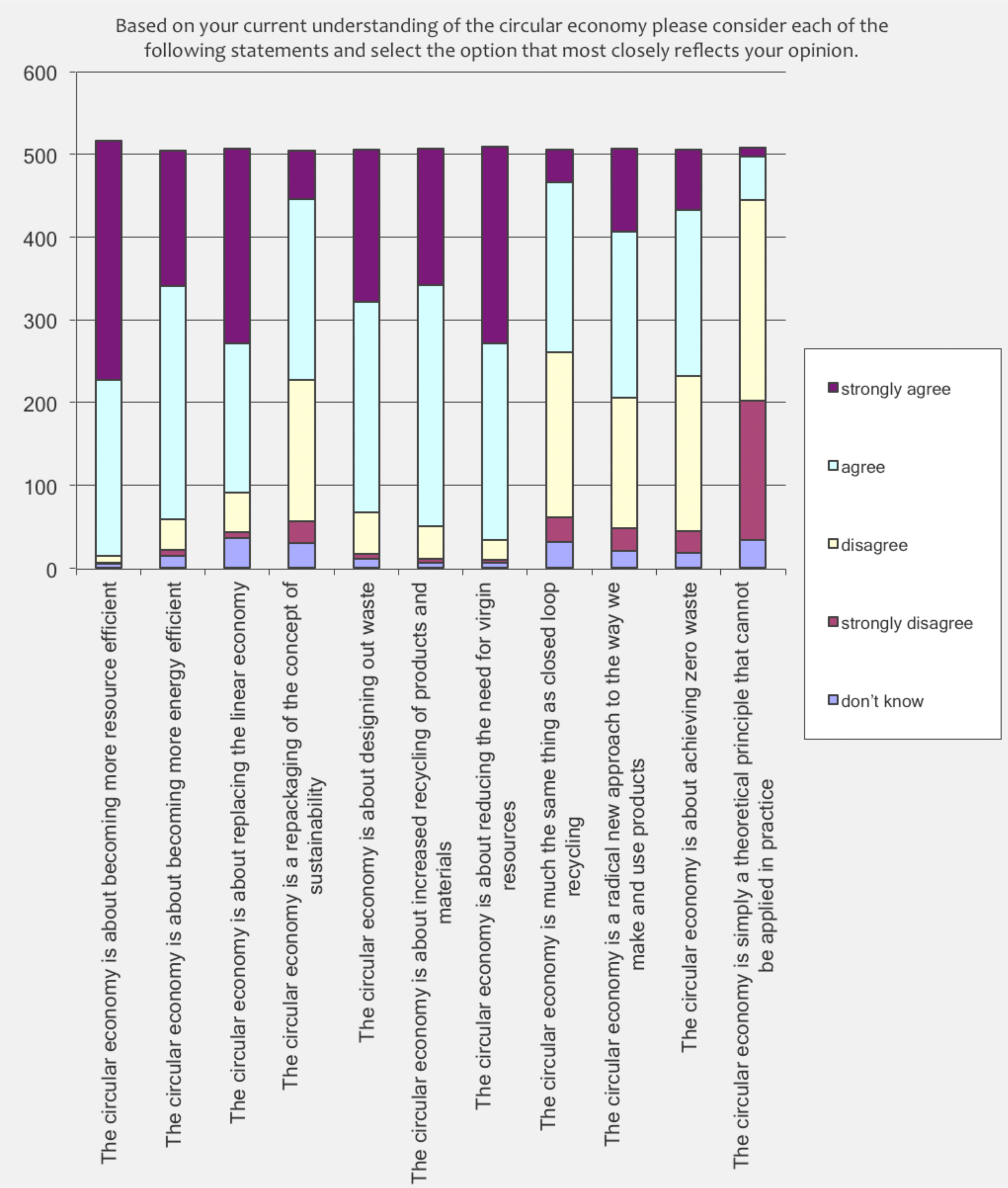
How familiar do you feel with the term circular economy?		
Answer Options	Response Percent	Response Count
Very	32.0%	196
Reasonably	49.3%	302
Not very	14.5%	89
Not at all	4.1%	25
answered question		612
skipped question		0

A series of statements about the circular economy were presented to respondents, who were asked to indicate a level of agreement or otherwise with each statement. From the responses provided in Table 6 (illustrated in Figure 2), large majorities of respondents support the statements linking the circular economy to becoming more resource and energy efficient and that it is about replacement of the linear economy. In the same vein a large majority of respondents also agree that the circular economy is about designing out waste and reducing the need for virgin resources.

Table 6 – Statements about the Circular Economy

Based on your current understanding of the circular economy please consider each of the following statements and select the option that most closely reflects your opinion:						
Answer Options	strongly agree	agree	disagree	strongly disagree	don't know	Response Count
The circular economy is about becoming more resource efficient	288	213	9	1	5	516
The circular economy is about becoming more energy efficient	163	282	37	7	15	504
The circular economy is about replacing the linear economy	235	181	48	6	37	507
The circular economy is a repackaging of the concept of sustainability	58	219	170	27	30	504
The circular economy is about designing out waste	184	255	50	6	11	506
The circular economy is about increased recycling of products and materials	165	291	40	4	7	507
The circular economy is about reducing the need for virgin resources	237	238	24	3	7	509
The circular economy is much the same thing as closed loop recycling	40	205	200	29	32	506
The circular economy is a radical new approach to the way we make and use products	101	200	158	27	21	507
The circular economy is about achieving zero waste	73	201	187	26	19	506
The circular economy is simply a theoretical principle that cannot be applied in practice	11	52	243	168	34	508
answered question						523
skipped question						89

Figure 2 – Statements about the Circular Economy



Respondents were more split on the statements around circular economy as a repackaging of sustainability, whether it is about achieving zero waste, and whether it is a radical new approach to the way we make products. They were also split on whether it is much the same thing as closed loop recycling.

Respondents firmly stated that they felt that the circular economy is about increased recycling of products and materials and also firmly disagreed that the circular economy is simply a theoretical principle that cannot be put into practice.

Respondents were asked whether the term circular economy was frequently used in their organisation. One third of those responding said it was (as shown in Table 7), while a significant majority (over 60%) said the term was not frequently used.

We also asked those that said the term was used frequently to indicate a view as to whether the term was widely understood. Clearly some 'no' respondents in Table 7 chose to continue to answer this supplementary, but nevertheless the result is a fairly even split with a slight majority indicating the term is not widely understood even if it is used frequently (as described in Table 8).

Respondents were asked to consider the potential of the circular economy to be an opportunity or a threat to their organisation. Table 9 shows a significant majority of those responding suggesting agreement that the circular economy represents an opportunity. A significant minority see challenges and a small minority took the view that the circular economy will have no effect on them. Regardless of whether it is seen as an opportunity or a threat, a majority of those responding disagree with the statement that the circular economy will have no effect on them, illustrated clearly in Figure 3.

Table 7 – Use of the term Circular Economy within organisations

Is the term circular economy used frequently within your organisation?		
Answer Options	Response Percent	Response Count
Yes	32.4%	169
No	63.0%	328
Not sure	4.6%	24
answered question		521
skipped question		91

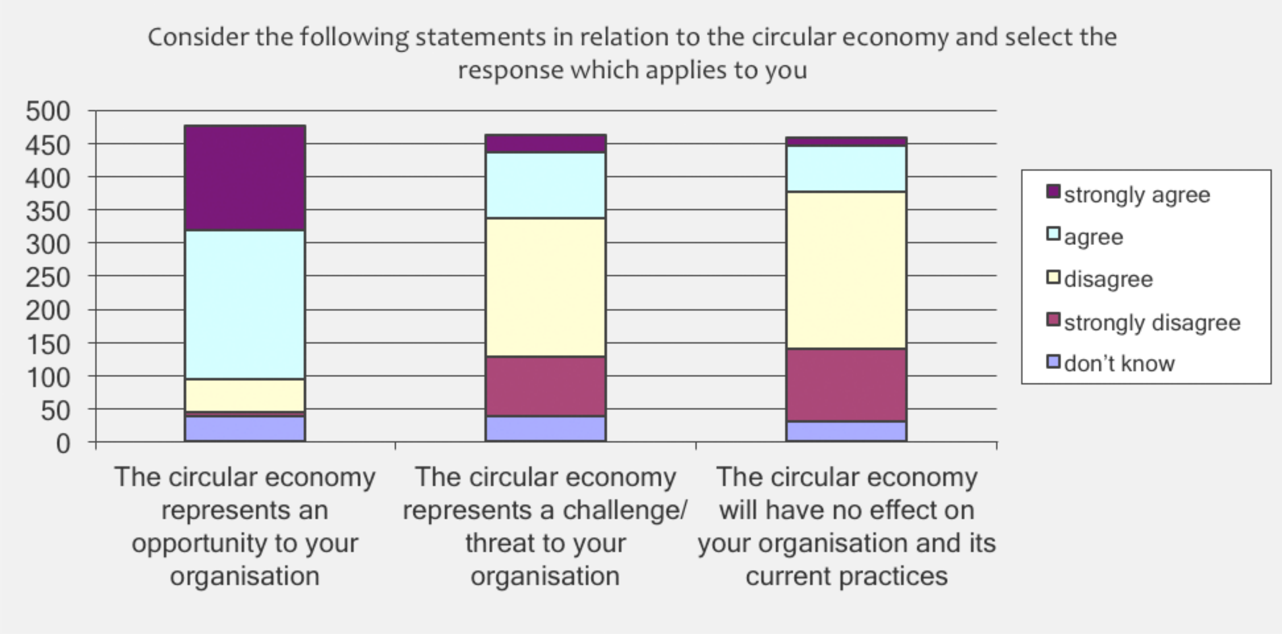
Table 8 – Understanding of the term Circular Economy within organisations

If yes, in your opinion is the term widely understood in your organisation?		
Answer Options	Response Percent	Response Count
Yes	36.2%	124
No	44.0%	151
Not sure	19.8%	68
answered question		343
skipped question		269

Table 9 – Circular Economy: opportunity or threat

Consider the following statements in relation to the circular economy and select the response which applies to you:						
Answer Options	strongly agree	agree	disagree	strongly disagree	don't know	Response Count
The circular economy represents an opportunity to your organisation	156	226	48	6	40	476
The circular economy represents a challenge/threat to your organisation	26	99	209	90	39	463
The circular economy will have no effect on your organisation and its current practices	12	70	237	108	32	459
answered question						481
skipped question						131

Figure 3 – Circular Economy, opportunity or threat



When asked about planning for the circular economy, respondents were asked to answer and state if they were actively planning. Table 10 shows that this question generated a low response count, and of the 239 responses received, a total of 166 were individually analysed as indicating any sort of level of planning for the circular economy – representing 69% of those responding to the question but only 27% of the whole cohort of the survey.

Respondents were asked to identify hurdles to the successful implementation of the circular economy, and Table 11 describes the range indentified, also illustrated in Figure 4. While responses are spread reasonably evenly across a range of hurdles, a clear majority of those responding saw lack of awareness within their organisation as a real barrier.

When asked to consider the level of preparedness of different elements of the waste and resources sector, only very small numbers of respondents indicated where they thought sectors were very prepared, with the largest of these modest responses indicating that Scottish and Welsh policy makers, research organisations, reprocessors and consultancies were best prepared. Sectors regarded by those responding as least prepared were local authorities, English policy makers and retailers (see Table 12).

On the question of where leadership was coming from, we asked a deliberately open question. Although Table 13 shows there were fewer respondents overall to this question, analysis of the responses shows unprompted recognition for certain organisations, most notably the Ellen MacArthur Foundation (EMF) and WRAP/Zero Waste Scotland, with CIWM also gaining recognition in responses not least for initiating this research to support its membership. In terms of broader leadership influences (illustrated in Figure 5), Europe came out strongly, as did Industry, reflecting the profile gained by a number of major businesses working in this area alongside the EMF as well as the emergence of new policy from the European

Table 10 – Planning for the Circular Economy

Is your organisation currently making any plans for the circular economy? If so please state what these are.	
Answer Options	Response Count
	239
answered question	239
skipped question	373

Table 11 – Circular Economy: hurdles to development

What are the main hurdles to your organisation in developing the circular economy? (select all that apply)		
Answer Options	Response Percent	Response Count
Lack of awareness	55.3%	259
Clarity of terminology	41.9%	196
Customer buy-in	37.2%	174
Competition	7.1%	33
Economics	38.5%	180
Inertia	27.4%	128
Short-termism	41.7%	195
Leadership issues	25.4%	119
Policy framework	37.8%	177
Other (please specify)	16.5%	77
answered question		468
skipped question		144

Figure 4 – Circular Economy: Hurdles

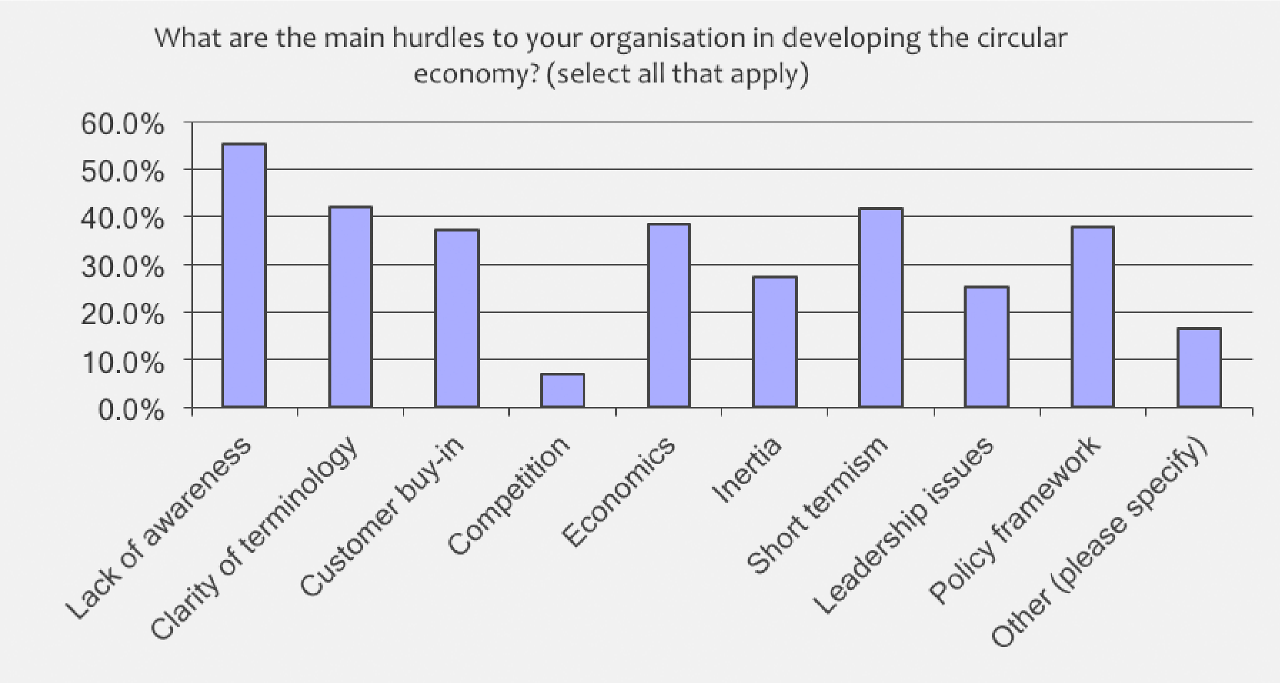


Table 12 – Preparedness of the Waste and Resource Sector

How prepared do you feel the different parts of the waste and resource sector are to make any changes necessary to deliver the circular economy?

Answer Options	Very prepared	Moderately prepared	Partially prepared	Not very prepared	Not at all prepared	Don't know	Rating Average	Response Count
Local Authority	4	35	121	170	83	53	3.97	466
Consultancy	38	133	145	34	6	92	3.25	448
Research Organisation	50	144	121	23	5	104	3.23	447
University or College	33	119	134	42	10	108	3.45	446
Waste Management Company	15	97	148	109	33	51	3.44	453
Reprocessor/Recycling Company	38	129	137	81	16	51	3.13	452
Collection & Logistics Provider	9	55	128	132	39	83	3.87	446
Waste Brokers	14	62	103	109	53	105	3.99	446
Government (Policy Makers) - England	7	39	104	137	69	83	4.07	439
Government (Policy Makers) - Wales	33	107	100	52	14	122	3.64	428
Government (Policy Makers) - Scotland	50	103	103	43	9	123	3.53	431
Government (Policy Makers) - Northern Ireland	11	47	82	85	29	171	4.38	425
Government (Policy Makers) - Republic of Ireland	6	34	84	63	35	203	4.64	425
NGO	17	72	130	56	16	146	3.96	437
Retailer	3	38	125	125	75	80	4.06	446
Manufacturer	9	42	136	131	60	69	3.89	447
Designer	9	58	126	117	58	78	3.88	446
Engineer	6	49	127	108	49	99	4.01	438
Trade Association	12	49	123	106	41	109	4.00	440
Environmental regulator	6	64	133	113	53	77	3.84	446
Other	1	4	25	27	10	186	5.37	253
answered question								469
skipped question								143

Table 13 – Leadership for the Circular Economy

Where do you feel the leadership for driving the circular economy forward is currently coming from?	
Answer Options	Response Count
	358
answered question	358
skipped question	254

Commission during the research period. Many respondents volunteered a simple 'none' or declined to respond.

When asked to address the question of the role of CIWM, respondents indicated a range of activities where they felt CIWM should consider provision and leadership for its membership. While responses are fairly evenly and widely spread across a range of activities associated with the Chartered Institution in its present form, what is also very clear from those responding is the mandate for CIWM to respond. Very few respondents considered the Chartered Institution had no role to play (Table 14).

Respondents were asked to address the preparedness of the CIWM itself for the provision of necessary support in relation to the circular economy. Table 15 shows a small minority of respondents believing CIWM to be fully prepared

Table 14 – Support from CIWM

Is there any specific support that CIWM could offer or make available to your organisation to help in your delivery of the circular economy? (select all that apply)		
Answer Options	Response Percent	Response Count
Training	42.1%	205
Guidance	56.3%	274
Research	36.1%	176
Professional Development	37.2%	181
Leadership	37.2%	181
Roadshows	17.5%	85
Seminars	38.4%	187
Lobbying	35.7%	174
None of the above, they have no role to play	3.3%	16
Don't know	8.2%	40
Other (please specify)	6.2%	30
answered question		487
skipped question		125

but with many more considering the Chartered Institution to be at least partially prepared. In general comments made at the end of the survey, many respondents commented on the leadership shown by CIWM in commissioning this survey of members to better understand future needs and challenges related to the circular economy.

Figure 5 – Word Cloud of respondents' unprompted views on where circular economy leadership is coming from: the top 'key words'

Table 15 – Preparedness of CIWM

How prepared do you feel CIWM is in providing any necessary support in relation to the circular economy?								
Answer Options	Fully prepared	Moderately prepared	Partially prepared	Not very prepared	Not all prepared	Don't know	Rating Average	Response Count
	34	170	155	39	9	88	3.17	495
answered question								495
skipped question								117

Findings: telephone interviews with industry leaders

Structured telephone interviews were carried out with 54 industry leaders from across the spectrum of interests within the waste and resources sector. The intention in these interviews was to take the same themes of the electronic survey and allow interviewees an opportunity to discuss in more detail.

Their views were sought on a series of questions linked to their understanding of the circular economy concept, exploring the opportunities, challenges and barriers to developing the concept further, and identifying sources of help and support.

In the narrative that follows, we have sought to highlight the main themes and trends in the interviews we conducted, illustrating these with observations from many of the interviewees.

Familiarity and understanding of the term circular economy

All those interviewed, regardless of what sector they were involved in, demonstrated confidence in stating they had a clear understanding of what the term circular economy means. There were detailed discussions of what the concept meant to their individual organisation or business and there was commonality in the view that it requires moving from linear models towards more circular business models, using fewer resources, producing less waste and, where it is produced, making better use of it. In addition, there was a lot of discussion focusing on lease, buy back, and asset management business models. There was also consideration given to what the circular economy means at the individual product level, particularly with reference to the system within which an individual product sits, the user needs, experience and engagement in the product, the various demands and influences around the product, and the impact this has along the whole chain. There was clear recognition that the practical application of the concept can be complex.

For many there was a feeling that the basis of the concept is nothing new, it's merely building upon and extending various approaches that have been around for some time. A sense of frustration was apparent from some of those interviewed regarding what they considered to be a slow pace of change, and the fragmented feel to the current approach that lacks clear drive and leadership to move things forward. Others considered that the circular economy will happen naturally when the economics are right for it. These issues are explored further when considering barriers and challenges.

From a retailer's perspective, it was felt that generally people are comfortable with the concept but the challenge is delivering this on a day-to-day basis and actually understanding what this looks like. This was illustrated by Sarah Wakefield of Co-operative: "Sometimes being innovative and creative can be challenging to translate into a customer message, particularly if the changes being made are more technically focused." Mike Walters of the John Lewis Partnership went on to say that "despite barriers, early adopter manufacturers and retailers should see the greatest reputational benefit".

Within the academic sector there appears to be disparity between how universities are responding outwardly to the concept and how they are reacting internally as an organisation. For example, there are many universities who are leading the way in circular economy research and providing business focused support projects. "WISE Network's whole purpose of being is to focus on economic development in Wales and the circular economy underpins this" stated Rebecca Colley-Jones.

In addition universities are forward looking in the courses they run and the skills set they are providing industry, for example Margaret Bates provided detail on how the University of Northampton has developed a Postgraduate Certificate in Resource Management to meet particular needs in implementing the circular economy concept along the supply chain. However, as organisations that purchase and procure, universities may not necessarily be leading the way in adopting more circular practices, and like many organisations "there is a disparity between the need to be novel and innovative, and a desire to be risk adverse" (Margaret Bates).

Some of the large waste management companies have adopted the circular economy as a guiding principle for some time now, recognising the need to be ahead of the game in refocusing and redefining what they do in a changing environment. In SITA they have succeeded in shifting their focus over the last few years from mainly disposal towards more material management systems. According to David Palmer-Jones, for them it is all about collection, effective treatment, and returning secondary resources and recovered energy to the market place in the most efficient way possible. Whilst having a strong vision looking forward, there is still a need to balance day-to-day requirements and expectations. For example it is recognised that there is a still a need to maintain the vocabulary of waste, at least in the short term, to effectively engage with the existing customer base.

On a local level, it can be a challenge for local government to find its place and establish its role moving forward. Local authorities continue to face significant pressure and ever decreasing resources and this can mean there is little opportunity to invest in the changes required. In addition, as recognised by John Quinn of arc21, there can be tensions between creating circumstances for infrastructure and moving towards a more circular economy in material management. For example, planning for 25 year time horizons means that feedstock needs to be guaranteed and it can be a challenge to build in flexibility to allow for change. The primary role of the collection and disposal authorities is delivering infrastructure for the management the waste streams now, rather than redefining roles and responsibilities for the future.

The challenge of redefining local government's role in a climate where the economic value of resources is given greater precedence was also recognised by Tim Walker of Belfast City Council: "As the big producers engage with their waste and take greater ownership, then what will this mean for those who have collection responsibilities? We will be left with an increasing amount of 'glar', the waste with little or limited value".

Competition for the higher value material is echoed by comments from Ian Wakelin of Biffa who identifies possible risk to waste companies of other supply chain players withholding valuable products and materials. Dustin Benton of Green Alliance supports these comments, noting that the sector needs to ensure it has control of the higher value materials, otherwise other organisations will cherry pick these and waste companies will be left with the low value residuals. Paul Vanston of Kent Resource Partnership issues an advisory word to his local authority colleagues in similar vein: "If such fundamental issues cannot be resolved, councils should not be surprised if the private sector works around us (e.g., manages its own feedstock of high quality materials by going direct to consumers for supplies)."

For Merseyside Waste Disposal Authority (like Kent), the need to move to a different mindset has resulted in a public facing name change, with the authority now referring to itself as 'Merseyside Recycling and Waste Authority' and adopting the strapline "Merseyside, a place where nothing is wasted". There is the recognition that with a big suite of contracts in place for recycling, treatment and landfill, the next big push is prevention and reuse and this has its foundation in the principles of circular economy. According to Carl Beer the authority realises the economic value of retaining materials in Merseyside, specifically through green jobs but also manufacturing industry. At the same time social context and values are not being ignored. Whilst this is not easy, Carl notes that "15 to 20 years ago when recycling targets first came in, there was resistance mainly due to a lack of understanding etc. But, as shown, things do change and will change again in the future".

For many local authorities it is a case of continuing to work in the right direction, for example through reuse and prevention activities, but there is a real need to demystify the concept, through good working examples of the circular economy in practice. It can be difficult to fully engage if the conversation is totally focused on economic models without demonstrating the practical application of the circular economy for local government. As Lee Marshall of LARAC said "The language of circular economy is too high-brow. There is little or no public connection."

Liz Goodwin is also clear about WRAP's progressive role into this area, building upon their work along the supply chain. Consumption is a priority area that needs to be tackled if success is to be achieved in terms of the circular economy. This is echoed by Tim Walker who considers that many of the economic models we are moving towards have been done before, particularly in relation to lease rather than ownership, but have been waylaid by massive consumerism which arose since the 1980s; now there is a need to share the vision that "second hand isn't second best."

For producers and those who are accessing secondary resources for manufacture, the circular economy is seen very much as the means to secure a supply chain that is resilient and both economically and environmentally sustainable. Andy Doran of Novelis talks about accessing secondary materials as "above ground mining" and "the obvious next step to ensure the company has a business model that can last". Clearly, difficult supply chains and reliance on geopolitically unstable sources for some materials is helping to drive the concept of the circular economy for some businesses. Susanne Baker of EEF is positive: "For manufacturers I see an opportunity to reduce energy consumption and CO_2 emissions, reduce exposure to volatile resource prices, and reduce consumption of chemical inputs whilst improving competitive position."

Evolution, step change or radical shift change

Across the sectors it is apparent that there is a definite variation in whether achieving the circular economy represents a major shift change; for some it is more of a step change process, an evolution of their current practices, whilst for other it's much more radical. What did come across was the view that taking the waste sector as a whole, it can be seen to be rather reactive, meeting a need rather than leading and directing. Whether this is real or perceived it does undermine the credibility of the sector in terms of whether it has a significant role to play in bringing about change. Iain Gulland of Zero Waste Scotland laid down the challenge to the industry: "the resources industry has a role to play, but this is a radically different one from that which most in the industry currently adopt."

Peter Clayson of DS Smith is also uncompromising: "Globally, circular economy is a major shift – it mimics natural cycles – and is imperative for the human race as pressure on natural resources continue." Others are more sanguine, for example Fay Dashper of ACE-UK: "I don't think it is a radical shift change, more about pinning some marketing on an old concept to get buy in from those that have been previously slow to make the right choices in resource management from cradle to grave." It is a good illustration of the range of viewpoints.

Acknowledging that there is some good practice taking place, Adam Read of Ricardo-AEA considers that we need "more revolution but plenty of evolution on that journey".

He further asserts that it is recognised that change like this brings with it a need for a whole different level of education and skills along the supply chain to enable the same principles of sourcing virgin material to be applied when sourcing from recovered materials.

For James Hurley of Built4Life there is the belief that the circular economy is already partially in place: it always has been. But a major shift in mindset needed for step change. There is a need for a major overhaul in how we design, build and use things and this will be a considerable challenge for the government, trade and society.

At the design end, it is acknowledged that the theory of the concept is well known but the practical application is much less so, therefore the change required is "quite radical and one that will take a generation to achieve as it requires a redesigning of the business model towards a whole system way of thinking. This change, although radical, will bring with it a huge amount of opportunities at every stage" says Sophie Thomas of the RSA.

Liz Goodwin definitely regards it as big change, and whilst there are steps being taken, and progress is being made in some areas, to be truly circular "a seismic shift is required in peoples' thinking".

At the local level, Carl Beer considers that a "big paradigm shift is required but if we don't change then opportunities will be missed ". He goes on to state that "local government are at a really interesting jumping off point, moving into material husbandry". John Quinn states that for local government it is more about "evolutionary change rather than revolutionary change". Another leading local government figure takes a more radical view of the cultural shift needed and the tools required: "Circular economy must start with product design and we need all levers available to encourage the public and business to participate i.e., government leadership, penalties for underperformance in local government and also 'pay as you throw'. Certainly with more emphasis than that in the current government approach for England."

David Palmer-Jones considers that for the private sector it is definitely a radical shift from simply being "suppliers of bins to working with the supply chain to return resources and energy to good use". He goes on to say that the "focus on weekly collection at the political level, misses the important picture of how to create more circularity for materials that come into the country". Tony Sharkey of Yorwaste considers that the change required is greater for some than for others, noting that "the circular economy requires a much greater change for designers and manufacturers than it does for the waste sector".

Steve Gough of Valpak takes a more cautionary view that we should expect evolution not revolution within the industry: disruptive innovation may be critical but it can't easily be directed and genuine game-changing innovation is rare.

For real progress to be made, the importance of ownership does need to be challenged, and a number of stakeholders agreed that a significant cultural shift change is needed to accept lease rather than ownership; despite the fact that there is a history of leased-based models operating in the UK.

The role of government in leading the way in this area is recognised by John Enright of Local Partnerships, particularly when considering the purchasing power of the public sector. Steps are being made to move away from the concept of ownership and also to tackle behaviour change at the same time and although this has its roots in curbing inefficient spending, it's a step in the right direction. Local Partnerships for example has recently leased new printers and centrally located them so users have to leave their desk to access them and swipe a card to activate the machine. The cost of the print requested is displayed on the printer awaiting verification from the user; the challenge it represents is designed to make the user consider whether it's a good spend. Small steps like this are the start of more directed movement towards more efficient business practices which feed into the circular economy concept. Everyone has a budget, so no matter how large or small we must think far more cogently about how we spend it if we are serious about developing a circular economy.

For retailers, although it is accepted that to fully embrace the concept of circular economy a cultural shift is required, it is considered that it is more likely to happen as a step change process as they will need to engage staff and customers fully with the idea and this won't happen overnight. Some felt that there appears to be a disparity between those who are effectively 'in the know' and everyone else that isn't yet fully engaged (or engaged at all!). There was a view shared by a number of stakeholders that what is needed is a critical mass to really get this off the ground, and at the moment it is not that clear how to get there.

Cathy O'Brien of Natural Resources Wales considers that regulatory changes will force the issues to an extent but it depends on how effectively the regulators can regulate the emerging industry. It is a big change for regulators themselves, who have been focused on environmental damage rather than how effective resources are being managed in the economy. Welsh Government is showing that they understand this change required; however it's not clear that this is replicated elsewhere.

Reflecting on the change needed, John Enright is more positive in considering that although an innovative shift change is an essential part of the process, this is something that the waste industry has successfully managed to do in the past, evolving from a disposal orientated sector to providing comprehensive waste management solutions. Therefore the change required, whether it's a step process or much more radical, should be something that is embraced and not to be feared. Simon Aumônier of ERM considers that "the circular economy is a powerful vision; it provides a good boost for the sector at a time when pace of change is slowing".

The need for collaboration

The need for collaboration and developing partnerships up and down the supply chain was accepted by all as being integral to the future success of the circular economy. The supply chain is complex and multifaceted and there is a need to remember that businesses and organisations are operating within a global supply chain. Therefore collaboration needs to start early and be all encompassing.

Liz Goodwin considers that for collaboration to truly occur there needs to be a sound understanding of how the circle works and what the repercussions are in terms of actions (and inactions) along the supply chain. This can be a real challenge.

For Andy Doran collaboration means "open innovation", not developing niche recycled products, but "pushing innovation into the mainstream regardless of brand". Iain Gulland acknowledged the need for collaboration but suggested that "the resources sector will not lead the transition to a circular economy. It will be business and design-led, although the sector has a key role as a supporting and enabling force and can help accelerate transition." Enda Kiernan of Cork County Council and CIWM Republic of Ireland Centre echoed this sentiment but with a challenge: "the big adventure for waste managers will be to properly reinvent ourselves and emerge from our comfort zones to find new ways to collaborate with new partners."

For waste managers, the big companies are unequivocal in the need to partner. SITA recognise that as a major waste management company their job is to prepare energy and materials for use again and therefore there is a need to collaborate with the supply chain to understand how best to reintroduce the resource back into the market or business. This is certainly different to the more traditional linear model that waste companies have been more used to following for so long. Biffa refer to their direct experience of collaboration across the supply chain in the development of a milk bottle recycling plant which relied on co-operation between dairy industries, retailers, WRAP and Biffa.

From a design point of view collaboration is seen as fundamental. Sophie Thomas considers that "there is a need to develop industrial symbiotic collaborative relationships at the earliest opportunity. Designing for circularity means designing the system around the product, designing for longevity and understanding how to retain value as a product and keep that product in the system, as well as the value of material used in the process. Knowledge transfer as part of this process is key". Nick Oettinger of Furniture Recycling Group supports the view that "end of life recovery is much more effective, cheaper and easier if products are designed right in the first place".

Dustin Benton echoes the comments made by Sophie Thomas, that collaboration is crucial between designers and reprocessors to optimise reprocessing options and goes on to say that there needs to be greater collaboration between local government at the collection end and the private sector managing the resource, particularly with regard to the wide range of variable approaches out there.

At local government level, collaboration is also seen as essential but there is recognition that it is not a given for the public sector to have achieved success in this area. There are good examples of local government working with others and achieving true collaboration but these are not necessarily typical. As acknowledged by TOR2, downstream collaboration with for example businesses and the social sector to improve separation and collection of recyclables, or local reuse and repair opportunities are more commonplace. However, upstream collaboration with product designers and major retailers is more important and more difficult and there is a need to broaden the level of engagement being achieved.

Retailers recognise that there is overlap with suppliers and therefore collaboration in terms of how to progress the concept further is fundamental (Sarah Wakefield).

With infrastructure development, collaboration is seen as essential and two stalwart industry collaborators echo this wholeheartedly. Bob Lisney considers that as we become more circular there will be fierce competition for resources and there will need to be a flexible response from the waste industry. Collaborating over data and information will support the industry in achieving this. Keith Riley agrees when thinking about the need to anticipate, negate and avoid future problems through the development of more flexible systems. The focus needs to be on collaborative infrastructure development, focusing on who the ultimate client is, who is going to use the materials and what is the quality chain demanding coming back up the line.

It has been demonstrated that some businesses and organisations already rely on collaborative working for their business models. Dan O'Connor of WARP-it has built a system that provides a platform for collaboration in terms of reuse opportunities. Dan has the view that to some extent if you are not collaborating already you have missed the boat for some resources; it's a competitive market out there and there are lots of players involved now.

What was apparent from the discussions with the various stakeholders is that collaboration may be occurring to some extent already but it needs to be much more extensive, more encompassing than at present. Achieving this, the benefits will be twofold; firstly it will raise the profile of circular economy and foster a commonplace understanding of its practical application, and secondly it is the only way to progress in delivering what is a complex model.

Opportunities from the circular economy

The general consensus was a positive one when considering what the opportunities were from the circular economy. For a lot of stakeholders it is being seen as a huge opportunity to reinvent a whole sector of the industry and to reap the benefits that this will generate such as upskilling the workforce, creating more jobs etc. However more than one stakeholder talked about the need for bravery and risk taking to step outside the norm; this can be particularly challenging for some sectors. Local government, particularly in two tier arrangements, may find this particularly hard to reconcile.

For some, the circular economy is being seen as a chance to open up new areas of activities, particularly embracing international opportunities, taking the skills and knowledge developed and applying them onto the global market place. For others, the pace of change is slower, it is about being ready to change business models as customer needs change, working towards the opportunities together and evolving over time.

Liz Goodwin regards the circular economy as a massive economic opportunity, but what WRAP see as fundamental to their role is to try and help businesses and organisations understand what this means in practice; by expressing what the opportunities are in real terms and in a way that can be readily understood and replicated.

From a retailers perspective there are large financial and environmental opportunities that are immediately apparent at the top level. Sarah Wakefield went on to say, “Balancing the benefits and opportunities whilst ensuring the price is right for the customer will always be a consideration within a retail environment”.

There was a general feeling that the move towards a circular economy represents a massive opportunity and there is enough evidence out there to show this. If done right, then it’s possible to grow a whole new business out of the circular economy. As Mark Varney of Fareshare points out, even if your business or organisation needs to evolve to make the most of the opportunities then this can and should happen; if your existence relies on a particular waste stream then you need to modify and refocus and use your expertise to work with business and industry at another level. This was equally illustrated by Paul McSweeney of ZeroBin Group in Ireland, focusing on the potential for technology to transform reverse logistics economics in line with the growing demands of the circular economy.

The word of warning from a number of stakeholders was whilst there are so many opportunities out there, planning for these needs to start right now, alongside retaining the current business models to meet existing customer needs. This can be tricky for small organisations with limited resources. In addition, whilst there is much talk of opportunities, the big unknown in all of this is what the cost of the shift to a more circular system will be.

Barriers to developing the circular economy

One of the repeated barriers to developing the circular economy is translating what it means on a practical level for different businesses and organisations. The terminology can be a challenge, and the concept as a whole is so big, it is almost overwhelming. Circular economy as a sound bite has many meanings to different people; therefore more clarity of the terminology is required for avoidance of doubt as to what outcome is required. Interestingly Gev Eduljee of SITA considers that “those who are operating in a more circular way don’t necessarily label it as such. They do not appear to be hung up on using that vocabulary; the focus instead tends to be on things such as security of supply and reducing raw material costs which on the face of it are much more tangible statements”.

Liz Goodwin points out that there is a real challenge in how to address the lack of awareness or appreciation of the opportunities that the circular economy can bring, and the resulting lack of urgency that arises with the poor understanding. Mick Ciotkowski of Technology Strategy Board agrees that “the waste sector needs to be more alert to the risks of continuing with linear economy approaches”.

In terms of promoting the circular economy and taking the lead, a significant hurdle according to David Palmer-Jones is that as a concept “it spans a number of different interfaces of government; as consequence it is never quite significant enough at any single interface”. Therefore politically there needs to be a single champion driving it forward.

The waste industry itself is perceived as a hurdle in terms of whether it is seen as a legitimate partner or whether it can gain legitimacy to go into industry and assist them in their processes and their supply chains to minimise material flow. John Ferguson of Ecoideam asserts that “the waste sector is politically undervalued except in Scotland. It is not regarded as critical sector for economic opportunity”. Addressing the credibility issue, whether real or perceived, is a priority for the sector.

Current policy can be a challenge. For example, the drive to collect waste streams and maximise recycling and reuse can lead to collection of materials for which there is no obvious, sustainable end market; particularly where the regulated secondary material market cannot compete with cheaper virgin raw materials. The converse is also true, in terms of accessing enough secondary materials to make alternative business models viable; that is translating the theoretical principles into practical applications. Andy Doran of Novelis talked about the strong demand globally for scrap metal and as pricing and availability for scrap becomes harder there is increasing need to develop technology to deal with less ‘clean’ secondary aluminium sources. These factors affect the margins against using primary sources.

In addition, there needs to be an appreciation that accessing secondary materials can be time restricted. For example, if a product has a 20 year lifespan, such as cars, then that material is out of the market in the medium to long term. As Andy Doran points out there needs to be an understanding that recycled content can and should grow, but the rate at which this can happen may be restricted. Jacob Hayler of ESA also points out that managing risk around supply (quality and quantity) of materials can be a significant challenge and it also needs to be recognised that applying generalised standards in product design can restrict innovation.

Having sufficient resources to commit to developing the circular economy at local government level is a hurdle. Both John Quinn and Tim Walker agree that priorities for local authorities are generally whether the bins are being collected and whether are targets being met. Added to this is the increasing pressure of using fewer resources, which means that there is limited time and energy available to the concept of circular economy and how this can be applied within local government. There is concern that the long term vision is being taken by others and if waste managers don’t keep up with the rate of change and engage more fully with the supply chain, their role will become reduced solely to the provision of basic services at best. In addition as a result of the ongoing budget cuts over recent years we have been losing skills and capability from the public sector; at a time when we need to upskill (not just in the public sector but across the industry as a whole). David Palmer-Jones warns that if we fail to rise to the challenge we could end up playing a lesser role – simply transporting material on behalf of others who are the strategists driving forward the agenda. As recognised by John Ferguson, we do need to build competencies across the industry to advance the circular economy.

From an end user or consumer perspective, communication can be a barrier in terms of knowing how to keep a product in the system, or how to retain the value of material. Sophie Thomas acknowledges that “consumers need to be very clear what process to follow and this isn’t always the case and can lead to loss of value if the wrong options are selected”. Michael Tracey of William Tracey Group supports this view and calls for better education to ensure proper segregation to maximise the availability and value of materials. In addition there is the challenge of effective communication across the sectors to ensure that all parties understand each others’ needs and capabilities.

Perception of products can also be an issue. As Tony Sharkey points out, the perception of quality of reused or recycled materials can be a real barrier to progress. Simon Aumônier also identified the potential for a lowered acceptability for secondary materials and products to reduce demand as a significant hurdle.”Alan Dukinfield of S2S concurs with this view, specifically with regard to reused goods. More needs to be done to challenge this. This is strongly echoed by Craig Anderson of Furniture Reuse Network who points out the pioneering role his members have played in developing reuse and altering the perception of re-used products. He reminds us that proper integration of the social value of reuse in the circular economy need not be a barrier – it should be an opportunity to embrace, especially in straightened economic times.

Perceptions of waste and how it is defined were raised by Phil Conran of 360 Environmental, who points out that waste regulation is not designed for reuse, remanufacture, or upcycling. For example, compare regulation of a consignment of material designated as waste versus the same consignment designated as a product. Ultimately, a major change in the definition of waste is needed. Dave Dalton of British Glass shares this view and specifically highlights the challenge of how post consumer glass is treated as waste rather than a resource. Fiacre O’Donnell of Encirc agrees that glass cullet should be regulated as a resource not a waste.

Having appropriate and adequate infrastructure in place to get the best out of resources is a big challenge. As noted by Jacob Hayler, the legacy infrastructure of the linear economy is a significant hurdle to address. Keith Riley was one of many stakeholders to concur that finance can be a big hurdle in terms of securing investment to support the development of the appropriate infrastructure. Where infrastructure is readily available, “there need to be good networks in place to ensure those along the supply chain know how to access and can make good use of the infrastructure” (Sarah Wakefield). Geography and location can restrict good intentions if the infrastructure is not in place. For James Hurley it is not just the infrastructure that is the challenge, but the mindset that goes with it, particularly in terms of reconciling the value given to the different treatment routes such as energy recovery, over other options.

Design can be a big hurdle; “meeting what the customers want and expect and reconciling this with best use of resources and products can be difficult and is an ongoing challenge” (Sophie Thomas).

How can the change be resourced remains a big barrier to progress and recognising the fact that resources are so constrained means we need to be strategic about the focus of our efforts. In a complex area such as this, agreeing where that focus needs to be can be a challenge in itself. Pricing is seen as a major hurdle by Charlotte Morton of ADBA, who placed great emphasis on the importance of a strong carbon floor price and proper valuing of resources. She saw an opportunity for us to build better relationships with Business Schools and task them with finding ways to make businesses incorporate the true value of the natural capital they use in their pricing, accounting and reporting.

There is also an issue with assuming everything to do with the circular economy has already been done, specifically by prominent organisations such as the Ellen

MacArthur Foundation. However it is recognised that there is still a real need for data rather than narrative, for clear replicable examples of good practice, and for case studies that a wide range of organisations and businesses can understand and apply.

John Ferguson highlights the fact that dealing with the large number of materials currently used (there are estimated to be 5000 different polymers in use in products) is a significant challenge to address, which adds to the complexity of the issue.

Translating the theory into replicable practical applications can be difficult. Steve Gough identifies the “need to know how to achieve the nuts and bolts of the circular economy. Most of the world is made up of engineers not visionaries”.

Overall, the fact that it requires such a massive change is a fundamental barrier. There is a need to bring so many stakeholders together to make this work and this, coupled with the scale of the challenge and the need to take a long term view (which can be hard for investors), is a threat to the speed of progress.

Support required

When considering the support needed to help organisations prepare for, or develop, a circular economy approach more general themes came from the discussions with the various stakeholders. One commonality was the need to provide a push to stimulate the step change necessary to get things moving in the right direction. Disruptive innovation can be difficult as the benefits may not be realised in the short or medium term. As Andy Doran pointed out, for organisations there has to be the acceptance that investment in innovation now, may not add 10% onto sales today or even tomorrow, it is a longer term vision that is required. This can be challenging from a business perspective and so may need an intervention of some form or other to drive the change.

In addition, it was felt that whilst the building blocks may already be there, there is a need to ensure there is the necessary policy framework to support innovative breakthrough in technology. There was definitely a sense that dialogue and also collaboration to some extent, is taking place but not to the level required; it is quite fragmented at the moment and therefore intervention may be required to stimulate greater involvement.

Whilst organisations such as the Ellen McArthur Foundation were recognised for their great work, it is apparent that there is a gap still in terms of data, examples of good practice and case studies at the SME level. The big organisations have high profile examples available of practical applications and the benefits that can be realised but this can be hard to translate to smaller organisations. Therefore support in this area was identified as a priority. Much of the immediate thinking about support required focus on immediate problems of material supply, quality, standards and collection systems in the waste and resources sector. These may seem very basic issues to the theorists and thinkers in the circular economy but they are voiced strongly by many interviewees as needing critical attention as a foundation to further development of the circular economy.

Interventions were also identified as a requirement to kick start the process and create sustainable markets to allow investment to be more forthcoming and also to stimulate the necessary innovation required. Charles Newman of Resource Media illustrated this starkly: “A major obstacle has to be the willingness of producers, manufacturers and industry to embrace secondary resources. To get markets right requires an active approach on the part of the waste and resources industry. The issue of ensuring sufficient good quality feedstock needs continued effort and this currently has several obstacles due to the structure and rewards available to the waste management industry.”

Existing tools such as Corporate Social Responsibility (CSR) were not considered to be strong enough to bring about the scale of change necessary; a combination of approaches is vital, reflecting the complexity of the issue.

Other tools such as the Packaging Recovery Note (PRN) system are also thought to be insufficient to drive change. As Chris Dow of Closed Loop Recycling points out, the system needs to be better enforced and improved upon to provide more financial incentives for councils and others to collect packaging and to cover full costs of sorting and cleaning. In addition, greater economic incentives are needed for brands to include recyclate in the manufacture of their packaging.

Increasing the value of secondary material was thought to be a fundamental stimulus required, whether this is through tax breaks, variable VAT or other economic instruments. The Landfill Directive was repeatedly identified as an undisputed success in terms of stimulating recycling and treatment practices, and therefore some consideration needs to be given to fiscal measures to bring about change. In addition, in terms of secondary materials, different approaches were called for to ensure greater collaboration at the reprocessing end to ensure continual access to high value materials; an example quoted was inconsistency in supply of material as a result of lack of collaboration between those generating the material and those seeking to use the material as a secondary source for their products. Help is required to bring these stakeholders together more effectively.

In an era of austerity, ensuring support is focused on the right stakeholders was thought to be important. For example, there was much discussion on the need for education and greater communication with all stakeholders; however targeting that support at the supply chain was felt to be a more effective use of limited resource at present.

Better leadership on policy, and therefore stability in policy and direction, was requested as was a non-political, non-partisan leadership approach to encourage collaboration between businesses; fostering the role of an honest broker to support all parties. In addition leadership from the public sector in terms of procurement, and the role of reuse for example, was called for.

Some felt that a lack of appropriate legislation is a significant hurdle and that this is not allowing industry to plan for the long term. Others talked of the need for better Producer Responsibility initiatives. Nick Oettinger identified a need for Producer Responsibility legislation (or at least involvement of a government body as a threat for this), to properly incentivise the designers.

Michael Tracey is of the view that more regulation is probably not needed, but we do need better enforcement of current regulations, especially to support existing infrastructure investments.

Training is essential – for some there is the belief that there is a whole skills set missing to enable a smooth transition to the use of different economic models and different ways of working. In addition, Mark Christensen of BioSci identified the need to upskill the general workforce in the sector to help improve quality at every step.

Peter Jones of Ecolateral takes the view that three key things needed to advance the circular economy, namely much better data on quantities and flows of materials, Producer Responsibility regulations which will lead to product redesign, and economic incentives such as taxes or statutory enforced tradable permits. Mick Ciotkowski believes that the circular economy will be driven by combination of policy drivers, restriction in resource availability, and innovation. However, a view shared by many was that bigger resource shocks may be needed before the circular economy can become mainstream.

The need for a combination of tools was clearly identified by most of the stakeholders. As pointed out by Charles Ross "The carrot helps the early adopters but the stick is needed to mainstream the change".

The role of CIWM

There was a strong agreement, across members and non-members alike, that CIWM has a significant role to play in supporting the sector as we move forward. CIWM was applauded for initiating this work as an important contribution to shaping the organisations' future thinking and strategy. Echoing the findings of the electronic survey, many interviewees felt though that CIWM has much to do to respond to the challenge.

For some, the name of the organisation will limit its relevance to the debate and ensure that it remains a peripheral player. For others a focus on the name is a mere distraction as it is actions rather than names that matter. Some felt that the Institution was old fashioned in its attitudes and was embedded in a risk averse culture. Jonathan Straight was trenchant: "CIWM has huge issues, because of the work of others they must feel like they need to respond." Esther Kiddle of TK Associates was equally trenchant and opposite: "CIWM is a great institution, it has woken up to the future challenges – it just needs to stay close to the issues, broaden and modernise."

Interviewees also commented on what is seen as a lack of cross-sectoral representation within the CIWM membership, which still has an historical strong bias towards waste and local government. Many saw a need for CIWM to evolve from within and be clear about its future direction, or it would have less significance to a sector focused on resources not waste. At the same time it is recognised that CIWM needs to balance the requirements to focus on the current needs of its members, but at the same time reposition itself for the future. "It needs to be seen as part of the solution rather than managing a problem" summarised Mark Varney, echoing the views of many.

Even if CIWM cannot directly address all the challenges identified, it has to at least have a view and be contributing to the debate. There was a sense from some that the lack of credibility of the sector as a real player in the debate will be detrimental in the long term to our position. Whilst it is recognised that organisations such as the Ellen MacArthur Foundation are being seen as thought leaders, what is really lacking is support in terms of application on the ground; effectively translating what the concept of circular economy means in a practical sense to the sector. Many interviewees agreed that CIWM needs to ensure it operates at the most strategic level, providing direction and strategies to move forward, and acting as a facilitator and an enabler.

The role of CIWM as a key institution in our industry is acknowledged by very many of the stakeholders interviewed. This emerged clearly in the list of potential actions for CIWM that they identified, described in more detail later in this report, summarised here to illustrate the extent to which stakeholders saw important roles for CIWM and actions it could take. These main actions were:

- Information sharing
- Facilitating
- Training
- Advocacy
- Host for open and honest discussion
- Researching
- Developing alliances within the sector and working toward a united view
- Building networks

Despite the critique of CIWM expressed by some interviewees, many also acknowledge that their own organisations are not necessarily any better prepared and that this is a shared challenge for our industry. Most interviewees were not short of ideas or enthusiasm about how CIWM can respond to the challenge of the circular economy and position itself meaningfully for the future benefit of its present and future members and the industry sector as a whole.

Reflections on the interviews and conclusions

As might have been anticipated we heard a wide range of views from stakeholders operating across the waste and resources sector. Despite the concerns, reservations or even cynicism of some about the circular economy being simply a fad and a bandwagon, there is a commonly shared view that this is the start of an exciting period. Respondents felt that we could be about to experience another real step change in our sector, a generational change that will look very different to the one that saw the start of the (still incomplete) transformation of the waste management industry from landfill-led to resource recovery-led.

We have reflected on the diversity of comments we heard and the analysis of the electronic survey and have drawn some conclusions focused on the key questions that CIWM sought to answer. They are presented here as summary responses to those questions.

Do we really understand what is meant by the Circular Economy?

There is no clear and unified definition of the circular economy and this is reflected in the responses received. The term is becoming increasingly familiar to the industry but there are hugely mixed views as to whether the term as widely used now is fully understood by many that use it. We see a significant difference between the understanding of the term and concepts by those working in the policy, research and consultancy fields and leading executives who reflect the thinking widely disseminated by researchers and think tanks. When compared to many in the operational aspects of the industry, including many reprocessors, waste companies and local authority personnel whose primary perspective is that the circular economy is really mainly about reusing and recycling more and generating some resource efficiency.

What does this term really mean for the waste and resource management industry?

We conclude that for many in our industry it really does mean more recycling, reuse and resource efficiency and we heard many colleagues focus on the emphasis they place on getting what might be seen as short-term challenges right – materials collection, sorting and quality, public communications, planning and recovery infrastructure investment being highlights. There is appreciation for the research and thinking being generated on the circular economy alongside a feeling that this is still less about the ‘here and now’, especially as little of real substance has been generated by governments or other organisations specifically on the circular economy.

How are different parts of the sector addressing the challenges posed by the Circular Economy?

There are examples within the report of how different sectors are meeting the challenges. Those who have operated at the treatment and disposal end are already repositioning themselves and adapting their business models. This was very evident with the waste management companies, who have already put into place new strategic and corporate business models. Those who are involved in the manufacturing side of things are looking at new ways to both retain the value of their products and also the materials used within them. Designers are also acknowledging the significant role they have to play and are targeting actions to improve the extent at which collaboration is currently occurring along the supply chain. On a more local level, tensions remain between current responsibilities and the need to be forward looking. Flexibility appears to be one of the key messages shared across the sector; something that can be a challenge when having to secure long term solutions.

Does the move to a Circular Economy involve a complete culture change for the sector?

There is a widespread view that we as an industry have to do more to engage fully with those in the supply chain that previously we may have had insufficient engagement with, such as designers, manufacturers and retailers. It means redefining our approach to engagement, finding new territory in which to engage meaningfully and repositioning ourselves as integral rather than at the ‘end of pipe’ where we traditionally have been. To do this, many see cultural change as essential and certainly incomplete, but there is optimism that we can do this and some have plans in place and are already making some progress.

How will it affect our sector in the short, medium and long term?

For most, whilst there is a view that the changes that the circular economy will bring are not something that will happen overnight, there is a shared strong sense of urgency that we need to be prepared in the short to medium term or risk being left behind. Some organisations have already started on this journey, others are on the cusp, although plenty have yet to start. What cannot be disputed is that the shift from a more linear to a more circular approach will change the shape of our sector completely, and we run the risk at best of operating on the periphery of the new way of working or at worse being excluded completely if we do not adapt. In addition, as we progress towards a more circular economy it is anticipated that there may be fierce competition for some resources or resource streams; a focus on securing a resilient supply chain will mean new stakeholders entering the market place.

How do we strategically/corporately plan for this in the future? Are plans already in place?

It is evident from the interviews and the surveys completed that the first thing we need to do is be very clear on what we mean by the circular economy and what this looks like for our sector. In terms of taking a strategic lead we need to engage fully with a wider range of stakeholders along the supply chain than previously. We need to change our strategic focus from a service industry that is there to manage waste at the end of the chain, to taking a more integrated role in decisions linked to material use, concept and design, manufacturing processes etc. Within the circular economy our expertise as waste managers is vital, but we need to strategically position ourselves as resource managers, driving and supporting the successful delivery of a more circular approach where maintaining value of resources is paramount. Some organisations have already started on this path, and have changed their business models and corporate direction; we can learn from those who are leading the way. Others are yet to consider how they can strategically plan for change.

What impact will it have on the sector/CIWM members?

It is clear, that if we continue with business as usual, especially if that business model relies on a more linear approach to survive, then we run the significant risk of becoming obsolete as a sector. The large waste management companies are currently leading the way, moving from traditional waste disposal, to comprehensive resource management systems, and some of our other members are spotting the opportunities for business growth and extension and acting upon them to get ahead of the game. However, for many of our members there remains much uncertainty as to which way to go and a real lack of understanding of how they can adapt and progress in a more circular fashion. In addition, some may have the understanding but not the appropriate tools to move forward. For a sector that has made its living from managing waste, a significant shift is required to reposition itself as a manager of resources. This is no small feat, but history has shown that the sector is nothing if not adaptable.

What are the different perceptions of the Circular Economy in the five countries and different parts of the sector?

We conclude that there is little difference in perception across the five countries and there is a danger of exaggerating any differences there may be. None of our jurisdictions have comprehensive policy frameworks for the circular economy; many point to Scotland as being seen to be further ahead in their thinking but this has not yet been translated into comprehensive policy or transformation of delivery. Scotland and Wales are recognised for their approach to improving recycling, setting zero waste and resource efficiency goals and adopting a more interventionist approach in general.

What effect Extended Producer Responsibility could or would have on the Circular Economy?

There is a surprising level of unanimity within the industry in relation to frustration expressed by many that Producer Responsibility has not delivered in the ways many desired. The waste sector still finds itself on the poor end of the deal when it comes to being recognised as essential to effective discharge of producer responsibility. EPR is widely supported and this reflects the desire to move away from just being the managers of the end of pipe and wanting to see producers fully accountable for the design and production decisions they make that often make the job of the recovery industries harder.

In summary, while our reflections and conclusions on the comments made in the research may be a mixed bag, what is clear is that the industry knows that change is necessary and desirable and is hungry for tools, information, resources and leadership to assist them in preparing their business to be circular economy-ready.

Interviewees' willingness to engage on the practical issues and challenges and their desire to support CIWM in responding to members' needs in helping its members to understand the circular economy and its implications is to be welcomed. Rather than see their comments as criticism of the Chartered Institution, they are more an acknowledgement that we all need to do more to prepare and adapt. They also reflect the view of many that CIWM has the potential to be a real catalyst here. Our interpretation of this is that it is as much a rallying call as it is a cry for help.

If the circular economy is to be a permanent change and even a paradigm shift, not just a marketing and policy makers' fad, then the lack of clarity and direction mean it is even more important for the CIWM to be a major player. CIWM needs to play the role for the waste and resources industry of facilitator, networker, disseminator and catalyst at the heart of the unfolding debate and practical application of the principles of the circular economy. Our industry has a diversity of organisations and interests within it, but only one professional institution that straddles these interests and is shaped by its members across the industry. That is why our recommendations that follow primarily focus on the role of CIWM, but necessarily acknowledge that many others have important and complementary roles, and that we do need to collaborate more effectively.

Conclusions

The research shows that the sector appreciates the leadership shown in CIWM commissioning this piece of work and the indeed the expectation that the Institution will continue to consolidate its position in influencing the Circular Economy agenda.

This emerged clearly in the detailed list of potential actions for CIWM that they identified, here in more detail to illustrate the extent to which stakeholders saw important roles for CIWM and actions it could take. These main actions were:

- **Information sharing:** effectively disseminating information across the sector to improve understanding of both the theoretical principles and the practical application of the circular economy was seen as paramount for many. CIWM needs to continue to increase its message that the circular economy is the big opportunity for the sector in coming years. It needs to showcase benefits, promote good practice and advocate better data including promotion of a compulsory integrated data capture system (to build on the work already done by edoc). Bill Dolan of CIWM Republic of Ireland Centre suggested much of this could be packaged into an interactive and evolving Toolkit for CIWM members.

- **Facilitating:** taking an independent position to bring the right people to the table, facilitating those discussions, and ensuring clarity is brought to the debate up and down the supply chain; liaising with producers and designers to show them the capabilities of the recycling and resources industry.

- **Training:** ensuring that the sector has the appropriate skills to be effective and can move forward in a proactive manner; more detailed training needs assessment is required; seminars showing good examples and new initiatives; possible roadshows around the Centres; training on practical aspects such as product refurbishment.

- **Advocacy:** providing thought leadership and be recognised as an effective player in the debate; important role for CIWM in communicating to UK and Irish Governments.

- **Host for open and honest discussion:** we need to learn from each other and then move on. Time and resources are limited so we need to learn from others' mistakes and not be afraid of failure. CIWM can be an honest broker and facilitator.

- **Researching:** support research into the circular economy in practice, to develop accessible case studies of mainstream examples which clearly evidence the practical application of the concept and resulting benefits.

- **Addressing the image of the sector:** continued vigilance in asserting the modern professionalism of our industries and supporting all efforts to eliminate poor practice, rogue operators, waste crime and illegal exports.

- **Developing alliances within the sector and working towards a united view:** wherever possible build on the shared agenda of sister organisations and promote the direction of travel we need to go in; continuing with a more collaborative approach and showing solidarity as an industry to government policy makers of what we believe is the right way forward

- **Building networks:** essential for knowledge transfer, essential to build an 'extended design team'.

Recommendations for CIWM

CIWM has an important role to play as one of a wider group of stakeholders such as all 5 governments, retailers, designers, manufacturers and researchers. Together our task is to secure the benefits of the circular economy as well as raise the profile of the value of the circular economy. Based on our reflection of the insight provided by many leading figures in the waste and resources sector, we offer CIWM for consideration five key recommendations:

- Develop, lead and co-ordinate a **Circular Economy Action Group** with a focused remit to engage internally with the waste and resources sector and externally with all key players in the supply chain, which will deliver an Action Plan with a routemap assisting organisations to drive towards the transition to a circular economy.

- Develop a **Circular Economy Policy Statement** that clearly signals to outside stakeholders in the resources supply chain the intent of the Chartered Institution with regard to its role in the development of the circular economy.

- Identify opportunities to **embed the circular economy into CIWM's day to day activities,** structures, strategies and future planning.

- Utilise all communication channels such as the website, journal and social media, focusing on the potential role of the CIWM as a catalyst and facilitator, for **engagement and dissemination of circular economy developments and practice** within the whole CIWM membership.

- Invest **further time and support in initiatives,** such as the RSA's The Great Recovery, linking designers and other actors in the supply chain with waste and resource managers, by providing a combination of corporate support from CIWM and development of a network of waste and resource management organisations willing to contribute.

Appendix one: industry leaders interviewed

Craig Anderson	Furniture Reuse Network
Simon Aumônier	ERM
Susanne Baker	EEF - the manufacturers' organisation
Margaret Bates	University of Northampton
David Beadle	North London Waste Authority
Carl Beer	Merseyside Waste and Recycling Authority
Dustin Benton	Green Alliance
Gareth Bourton and Steve Bryant	TOR2 (Torbay Council and Kier)
Mark Christensen	Biosci
Mick Ciotkowski	Technology Strategy Board
Peter Clayson	DS Smith
Rebecca Colley-Jones	WISE Network
Phil Conran	360 Environmental
Dave Dalton	British Glass
Fay Dashper	Alliance for Beverage Cartons & the Environment
Bill Dolan	Repak
Andy Doran	Novelis
Chris Dow	Closed Loop Recycling
Alan Dukinfield	S2S
Gev Eduljee	SITA
John Enright	Local Partnerships
John Ferguson	Ecoideam
Liz Goodwin	WRAP
Steve Gough	Valpak
Iain Gulland	Zero Waste Scotland
Jacob Hayler	Environmental Services Association
James Hurley	Built4Life
Peter Jones	Ecolateral
Esther Kiddle	Thomlinson Kiddle Associates
Enda Kiernan	Cork County Council
Bob Lisney	Advisory Committee on Packaging
Paul McSweeney	ZeroBin Group
Lee Marshall	Local Authority Recycling Advisory Committee
Charlotte Morton	Anaerobic Digestion and Biogas Association
Charles Newman	Resource Media
Cathy O'Brien	Natural Resources Wales
Dan O'Connor	WARPit
Fiacre O'Donnell	Encirc
Nick Oettinger	Furniture Recycling Group
David Palmer-Jones	SITA UK and ESA
John Quinn	arc 21
Adam Read	Ricardo AEA
Keith Riley	Independent
Charles Ross	Independent
Tony Sharkey	Yorwaste
Jonathan Straight	Straight plc (at time of interview)
Sophie Thomas	RSA
Michael Tracey	William Tracey Group
Paul Vanston	Kent Resource Partnership
Mark Varney	Fareshare
Sarah Wakefield	Co-operative
Ian Wakelin	Biffa
Tim Walker	Belfast City Council
Mike Walters	John Lewis Partnership

Appendix two: structure of telephone interview

CIWM research project on circular economy – questions for telephone interviews with industry leaders

Thank you for agreeing to participate in the telephone survey element of the CIWM's industry research project on circular economy. This telephone interview is being undertaken by approximately 50 industry leaders from all aspects of the waste and resources sector and all parts of the United Kingdom and the Republic of Ireland.

The questions below are provided in advance to assist you in preparation for the interview. The interview will be arranged at a convenient time and will last no more than 30 minutes.

Telephone interview questions

1. What does your organisation do in the waste/resource sector?
2. How familiar do you feel with the term circular economy and, briefly, what do you think it means?

2a. to what extent do you think the CE represents a major / radical shift change for the waste/resources sector?

3. Do you think that the concept of circular economy can be applied to your organisation?

3a. to what extent might it require a cultural shift?

3b. to what extent would you need to collaborate with other organisations to make it happen?

4. What, if any, opportunities do you see for your organisation in the circular economy?
5. Are you currently making any plans for the circular economy?
6. Do you see any threats from the circular economy for your organisation?
7. What do you consider to be the main hurdles to developing the circular economy?
8. What would help your organisation to prepare for or develop a circular economy approach within your organisation?

8b. Are you a member of CIWM and if so is there any specific support they could offer or make available to your organisation?

9. Any summarising comments you want to make about circular economy and our sector?
10. Are you happy for your comments to be attributable?

Further information

Your participation is greatly appreciated, and you will be sent a copy of the final report when it is published in October.
For any questions in the meantime, please contact the project team:

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Appendix three: structure of electronic survey

Profile information

1. What is your current job title? (Open question)

2. What is your organisation type? (Tick one)

- Local Authority
- Consultancy
- Research Organisation
- Academia
- Waste Management Company
- Reprocessor & Recycling Company
- Collection & Logistics Provider
- Waste Brokers
- Government (Policy Makers)
    - England
    - Wales
    - Scotland
    - Northern Ireland
    - Republic of Ireland
- NGO
- Retailer
- Manufacturer
- Designer
- Engineer
- Trade Association
- Other (please state)

3. Where is your organisation mainly based? (Tick one)

- England
- Wales
- Scotland
- Northern Ireland
- Republic of Ireland
- Other (please state)

Circular Economy Information

4. How familiar do you feel with the term circular economy? (Tick one)

- Very
- Reasonably
- Not very
- Not at all

5. Based on your current understanding of the circular economy please consider each of the following statements in turn and select the option that most closely reflects your opinion:

- The circular economy is about becoming more resource efficient

‘strongly agree / agree / disagree / strongly disagree/ don’t know’

- The circular economy is about becoming more energy efficient

‘strongly agree / agree / disagree / strongly disagree/ don’t know’

- The circular economy is about replacing the linear economy

‘strongly agree / agree / disagree / strongly disagree/ don’t know’

- The circular economy is a repackaging of the concept of sustainability

‘strongly agree / agree / disagree / strongly disagree/ don’t know’

- The circular economy is about designing out waste

‘strongly agree / agree / disagree / strongly disagree/ don’t know’

- The circular economy is about increased recycling of products and materials

'strongly agree / agree / disagree / strongly disagree/ don't know'

- The circular economy is about reducing the need for virgin resources

'strongly agree / agree / disagree / strongly disagree/ don't know'

- The circular economy is much the same thing as closed loop recycling

'strongly agree / agree / disagree / strongly disagree/ don't know'

- The circular economy is a radical new approach to the way we make and use products 'strongly agree / agree / disagree / strongly disagree/ don't know'

- The circular economy is about achieving zero waste

'strongly agree / agree / disagree / strongly disagree/ don't know'

- The circular economy is simply a theoretical principle that cannot be applied in practice

strongly agree / agree / disagree / strongly disagree/ don't know

6. Is the term circular economy used frequently within your organisation?

- Yes
- No
- Not sure

6b. If yes, in your opinion is it widely understood within your organisation?

- Yes
- No
- Not sure

7. Consider the following statements in relation to the circular economy and tick the answer which applies to you:

The circular economy represents an opportunity to your organisation

'strongly agree / agree / disagree / strongly disagree/ don't know'

The circular economy represents a challenge/threat to your organisation

'strongly agree / agree / disagree / strongly disagree/ don't know'

The circular economy will have no effect on your organisation and its current practices

'strongly agree / agree / disagree / strongly disagree/ don't know'

8. Is your organization currently making any plans for the circular economy? If so please state.

9. What are the main hurdles to your organisation in developing the circular economy? (tick all that apply)

- lack of awareness
- clarity of terminology
- customer buy-in
- competition
- economics
- inertia
- short termism
- leadership issues
- policy framework

12. How prepared do you feel the different parts of the waste and resource sector are to make any changes necessary to deliver the circular economy? (please use a scale of 1 to 10 with 1 being not very prepared and 10 being very prepared - don't know option will be available)

- Local Authority
- Consultancy
- Research Organisation
- Academia
- Waste Management Company
- Reprocessor & Recycling Company
- Collection & Logistics Provider
- Waste Brokers
- Government (Policy Makers)

  - England
  - Wales
  - Scotland
  - Northern Ireland
  - Republic of Ireland
- NGO
- Retailer
- Manufacturer
- Designer
- Engineer
- Trade Association
- Other (please state)

13. Where do you feel the leadership for driving the circular economy forward is currently coming from?

14. Is there any specific support that CIWM could offer or make available to your organisation? (tick all that apply)

- Training
- Guidance
- Research
- Professional Development
- Leadership
- Roadshows
- Seminars
- Lobbying
- Other (please state)
- None of the above, they have no role to play

15. How prepared do you feel CIWM is to provide any necessary support?

- Scale of 1 to 10, with one being least prepared and 10 being most.
- Don't know

Final information

16. What grade of membership of CIWM are you?

- Life
- Fellow
- Corporate
- Licentiate
- Graduate
- Associate
- Technician
- Student
- Affiliate
- Retired
- Not a member

17. Any other comments you would like to make on the circular economy and the waste and resources sector?

18. Are you happy for your comments to be attributable?

- Yes (If yes please provide your name an email address)
- No

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CIWM

The Chartered Institution of Wastes Management (CIWM), is the professional body which represents waste and resource professionals working in the sustainable waste and resource management sectors worldwide. CIWM sets the professional standards for individuals working in the industry and has various grades of membership determined by education, qualification and experience.

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