

*An estimate of levels of types of  
jobs created by the Harlow  
Enterprise Zone*

# Harlow Enterprise Zone: Skills Requirement Study

February 2013

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## Introduction and assumptions

The aim of this paper is to provide a possible split by size, sector and occupation of jobs that will be created within the West Essex Enterprise Zone (EZ) and suggest the potential skills requirements that will be generated from those, based on all available evidence regarding the EZ's priority sectors.

It is split into three sections:

- 1. The business size structure** – the number of jobs that will be based in the Enterprise Zone by business size band in a lower and upper bound scenario, taking into account two different hypotheses;
- 2. The occupational structure** – the number of jobs that will be based in the Enterprise Zone by occupational level in a lower and upper bound scenario;
- 3. The qualification structure and skills requirements** - the number of jobs that will be based in the Enterprise Zone by occupational level in a lower and upper bound scenario; an overview of the job profiles that might be sought after by future occupiers.

These sections are followed by a methodological note. It is important to read this before using the figures, as the approaches used in deriving these figures are critical in understanding their usefulness and relevance to different settings.

All sections highlight an upper and lower band for the estimates. It is likely that the reality will exist somewhere within these bounds, but without more information, these bands are all that is possible.

## 1. Size structure

Using an independent model and its own figures, Harlow Council estimates that the EZ could accommodate between 100 and 167 businesses<sup>1</sup>.

Combining this estimate with the expected sector structure of businesses presented here, the following estimate of businesses in each sector can be obtained:

Sector	Estimated no. of businesses by sector	
	Lower bound	Upper bound
Health and allied industries	30	50
Advanced manufacturing	30	50
ICT	20	33
Life sciences manufacturing	20	33
Total	100	167

Table 1 - estimated number of businesses by sector

Having set the expected sector structure of the future EZ's business base, it is possible to broadly estimate what its size structure will be. This can be approached from two different perspectives, which will result in the following alternative hypotheses:

### Hypothesis 1: The Enterprise Zone's business base within each sector will be similar in size structure to the wider UK economy.

The nature of the dominant business processes in at least three of the four sectors considered – international in scale, high-value, high-productivity, technology-intensive – can be argued to be a better predictor of size structure than geographical location.

In this case, the jobs estimate can be calculated based on the expected share of each sector in the EZ business base multiplied by the size structure of businesses in each sector. The UK-wide size structure of the sectors that are expected to be represented in the EZ is provided below.

Business size band	Health and allied industries	Advanced manufacturing	ICT	Life Sciences manufacturing
0-10	52%	65%	92%	78%
11-49	39%	26%	6%	12%
50-250	8%	8%	1%	6%
251+	1%	1%	1%	4%

Table 2- UK businesses by employment size band (West Essex EZ target sectors), Annual Business Inquiry, 2008

Under the assumption that the EZ's business base in each sector will have a similar size structure to the one found in the wider UK economy, we can produce an estimate of the potential distribution of firms in the EZ across employment size bands, which is provided in the table below.

<sup>1</sup> [Enterprise West Essex @ Harlow factsheet, October 2011](#)

Sector	Estimated no. of businesses by sector and size band									
	Lower bound					Upper bound				
	0-10	11-49	50-250	251+	Tot	0-10	11-49	50-250	251+	Tot
Health and allied industries	16	12	2	0	30	26	20	4	1	50
Advanced manufacturing	20	8	2	0	30	33	13	4	1	50
ICT	18	1	0	0	20	31	2	0	0	33
Life sciences manufacturing	16	4	1	0	20	26	4	2	1	33
Total	70	25	5	0	100	115	39	10	3	167

Table 3 - estimated number of businesses by sector and size band (hypothesis 1)

The associated upper and lower bound estimates of numbers employed by business size band are presented below:

Sector	estimated no. of jobs by business size (lower bound scenario)									
	0-10		11-49		50-250		251+*		Total	
	min	max	min	max	min	max	min	max	min	max
Health and allied industries	0	117	26	118	120	600	0	0	146	835
Advanced manufacturing	0	78	26	118	120	600	0	0	146	796
ICT	0	12	2	10	10	50	0	0	12	72
Life sciences manufacturing	0	40	10	46	47	234	0	0	57	320
Total	0	247	64	292	297	1484	0	0	361	2023

Table 4 - estimated number of businesses by business size (lower bound scenario)

\* Assuming a maximum employment potential of 500 employees

Sector	estimated no. of jobs by business size (upper bound scenario)									
	0-10		11-49		50-250		251+		Total	
	min	max	min	max	min	max	min	max	min	max
Health and allied industries	0	261	215	196	200	1002	250	500	665	1959
Advanced manufacturing	0	1176	143	196	200	125	250	500	593	1997
ICT	0	98	22	16	17	75	0	0	39	189
Life sciences manufacturing	0	459	44	98	100	334	250	500	394	1391
Total	0	1994	424	506	517	1536	750	1500	1691	5536

Table 5 - estimated number of businesses by business size (upper bound scenario)

\* Assuming a maximum employment potential of 500 employees

**Hypothesis 2: The Enterprise Zone’s business base within each sector will be similar in size structure to the local (regional) economy.**

It is equally acceptable to argue that the size structure of businesses can change considerably across geographical areas, even within the same sector. For instance, large firms (particularly multinationals) are more likely to establish their headquarters in London while SMEs may more often choose to be based in adjacent districts where running costs are more sustainable.

The table below compares the size structure of businesses in the East of England with that of the UK economy as a whole:

Size band (no. of employees)	East of England (%)	UK (%)	East/UK ratio
0-9	96	95.5	1.005
10-49	3.4	3.8	0.895
50-250	0.5	0.6	0.833
251+	0.2	0.2	1.000

Table 6 - businesses by employment size band: UK and East of England, Annual Business Inquiry 2012

As the table shows, there are minor differences in the size structure of the East of England compared the UK – particularly in the smallest size bands (0-9 and 10-49 employees), which represent respectively a slightly larger and smaller proportion of businesses in the region than in the nation as a whole. The far right column in the table expresses the East region’s proportion of businesses in each size band as a fraction of the corresponding UK’s proportion and can be used to adjust the previous business numbers estimates to reflect a smaller average size of businesses. The adjusted estimates can be seen in table 7 below; since these calculations return fractional values (<1) for firms in the largest size band in the lower bound scenario, we have assigned notionally one business to the Life sciences manufacturing sector, as this has a higher proportion of large businesses than all other sectors here considered.

Sector	Estimated no. of EZ businesses by sector and size band									
	Lower bound (adjusted)					Upper bound (adjusted)				
	0-10	11-49	50-250	251+	Tot	0-10	11-49	50-250	251+	Tot
Health and allied industries	16	10	2	0	28	26	17	3	0	46
Advanced manufacturing	20	7	2	0	29	33	12	3	1	49
ICT	18	1	0	0	19	31	2	0	0	33
Life sciences manufacturing	16	2	1	1	20	26	4	2	1	33
Tot	70	20	5	2	97	116	35	8	2	163

Table 7 - estimated number of EZ businesses by sector and size band (hypothesis 2)

The resulting job estimates are provided in the tables below.

Sector	Estimated no. of EZ jobs by business size (lower bound scenario)									
	1-10		11-49		50-250		251+		Total	
	min	max	min	max	min	max	min	max	overall min	overall max
Health and allied industries	0	157	115	513	100	500	0	0	215	1170
Advanced manufacturing	0	70	22	98	100	500	0	0	122	668
ICT	0	11	2	8	8	42	0	0	10	61
Life sciences manufacturing	0	21	11	49	50	250	250	500	311	820
Tot	0	259	150	668	258	1292	395	0	408	2219

Table 8 - estimated number of EZ jobs by business size - adjusted (lower bound scenario)

Sector	estimated no. of EZ jobs by business size (upper bound scenario)									
	1-10		11-49		50-250		251+		Total	
	min	max	min	max	min	max	min	max	overall min	overall max
Health and allied industries	0	261	215	196	200	1002	250	500	665	1959
Advanced manufacturing	0	1176	143	196	200	125	250	500	594	1998
ICT	0	98	22	16	17	75	0	0	39	190
Life sciences manufacturing	0	459	44	98	100	334	250	500	394	1391
Tot	0	1993	424	507	518	1536	750	1500	1692	5537

Table 9 - estimated number of EZ jobs by business size - adjusted (upper bound scenario)

## 2. Occupational structure

Having obtained an estimate of the employment potential of the EZ, it is important to consider how jobs will be distributed across occupational levels. Given that the EZ will only be fully operational the medium-term, these estimates can be made to reflect the projected occupational demand in 2015/2020 rather than the current occupational structure. This is feasible for all sectors except Life sciences manufacturing, for which projections have been made available by neither UKCES (the main source of labour market projections in the UK) nor Cogent (the sector skills council of reference); in this case the occupational structure as of 2009 has been used.

SOC 2010 Major Groups	Health and social care structure (2015) %	Advanced manufacturing structure (2020) %	Digital and creative structure (2015) %	Pharma & Medical biotech - structure (2009) <sup>2</sup> %	Average
1. Managers, Directors and Senior Officials	5	11	14	23	13
2. Professional Occupations	33	15	32	23	26
3. Associate Professional and Technical Occupations	11	12	24	13	15
4. Administrative and Secretarial Occupations	11	8	10	11	10
5. Skilled Trades Occupations	1	23	7	4	9
6. Caring, Leisure and Other Service Occupations	35	1	3	0	10
7. Sales and Customer Service Occupations	1	3	5	2	3
8. Process, Plant and Machine Operatives	1	17	1	16	9
9. Elementary Occupations	2	8	5	7	6

Table 10 - Occupational structure in the four EZ target sectors: UK, UKCES 2012 and Cogent 2010

<sup>2</sup> [Cogent Industry Factsheets 2010 – Pharmaceuticals and Medical Biotechnology](#)



Assuming that the occupational structure will be the same in EZ as in the UK economy as a whole, we can obtain the following estimates of jobs per sector per occupational level:

No. EZ jobs per sector per occupational level (lower bound)	Health and allied industries		Life Sciences Manufacturing		Advanced manufacturing		ICT		Total		Total %
	min	max	min	max	min	max	min	max	min	max	
1. Managers, Directors and Senior Officials	7	41	13	74	17	91	2	10	39	215	12%
2. Professional Occupations	48	275	13	74	22	122	4	23	88	494	25%
3. Associate Professional and Technical Occupations	16	92	7	42	18	97	3	17	44	248	12%
4. Administrative and Secretarial Occupations	16	88	6	35	11	60	1	7	34	190	10%
5. Skilled Trades Occupations	2	9	2	13	34	183	1	5	38	210	10%
6. Caring, Leisure and Other Service Occupations	52	294	0	0	1	8	0	2	53	304	14%
7. Sales and Customer Service Occupations	2	11	1	6	4	24	1	3	8	45	2%
8. Process, Plant and Machine Operatives	1	4	9	51	25	136	0	1	35	192	10%
9. Elementary Occupations	4	20	4	22	11	60	1	4	19	107	5%
<b>Total</b>	<b>146</b>	<b>835</b>	<b>57</b>	<b>317</b>	<b>144</b>	<b>780</b>	<b>12</b>	<b>72</b>	<b>359</b>	<b>2004</b>	<b>100%</b>

Table 11 - - number of jobs per sector per occupational level (lower bound scenario)

No. EZ jobs per sector per occupational level (upper bound)	Health and allied industries		Life Sciences Manufacturing		Advanced manufacturing		ICT		Total		Total %
	min	max	min	max	min	max	min	max	min	max	
1. Managers, Directors and Senior Officials	33	96	91	320	68	228	6	27	196	670	12%
2. Professional Occupations	219	646	91	320	91	306	13	61	413	1333	25%
3. Associate Professional and Technical Occupations	73	215	51	181	72	244	9	45	206	685	12%
4. Administrative and Secretarial Occupations	70	208	43	153	44	150	4	18	162	528	10%
5. Skilled Trades Occupations	7	22	16	56	136	459	3	13	162	549	10%
6. Caring, Leisure and Other Service Occupations	234	690	0	0	6	20	1	5	241	714	14%
7. Sales and Customer Service Occupations	9	25	8	28	18	60	2	9	36	122	2%
8. Process, Plant and Machine Operatives	3	10	63	223	101	341	0	2	168	576	10%
9. Elementary Occupations	16	47	28	97	45	152	2	10	91	306	5%
<b>Total</b>	<b>665</b>	<b>1959</b>	<b>390</b>	<b>1377</b>	<b>582</b>	<b>1959</b>	<b>39</b>	<b>189</b>	<b>1676</b>	<b>5484</b>	<b>100%</b>

Table 12 - number of jobs per sector per occupational level (upper bound scenario)

### 3. Qualification structure and expected skills requirements

The target sectors of the EZ have qualification requirements which are typically higher than the rest of the economy. To understand the potential makeup of qualifications that will be required from the future workforce in the EZ, we can use the projected demand for different qualification levels in three of the four sectors in 2015/2020 as provided by the UKCES and the current qualification structure of the workforce in the Life sciences manufacturing sector, for which projections are not available from UKCES. This information is presented by sector in the tables below.

Health and allied industries	Demand for qualification level within sector (UK, projection to 2015)	Estimated no. of EZ jobs by qualification level			
		lower bound		upper bound	
Qualification level		min	max	min	max
level 4+	51%	74	422	336	991
level 3	20%	30	170	136	400
level 2	18%	27	152	121	357
level 1	9%	12	71	57	167
no qualifications	2%	3	19	15	45
Total	100%	146	835	665	1959

Table 13 - skills demand in the health and social care sector by qualification level, UKCES 2012; estimated number of EZ jobs in the health and allied industries sector

Life Sciences Manufacturing	Current qualification levels of workforce within sector (Pharmaceuticals and Medical Biotechnology)	Estimated no. of EZ jobs by qualification level			
		lower bound		upper bound	
Qualification level		min	max	min	max
level 4+	54%	31	173	213	751
level 3	18%	10	58	71	250
level 2	10%	6	32	39	139
level 1	9%	5	29	35	125
no qualifications	10%	6	32	39	139
Total	100%	57	320	394	1391

Table 14 – qualification levels of workforce in the pharmaceuticals and Medical biotechnology sector (Cogent, 2010 from LFS data); estimated number of EZ jobs in the life sciences manufacturing sector

Advanced Manufacturing	Demand for qualification level within sector (UK, projection to 2020)	Estimated no. of EZ jobs by qualification level			
		lower bound		upper bound	
Qualification level		min	max	min	max
level 4+	36%	52	285	212	715
level 3	20%	29	155	116	389
level 2	21%	30	165	123	415
level 1	17%	25	138	103	345
no qualifications	7%	10	53	40	134
Total	100%	146	796	593	1997

Table 15 - skills demand in the advanced manufacturing sector by qualification level, UKCES 2012; estimated number of EZ jobs in the advanced manufacturing sector

ICT	Demand for qualification level within sector (UK, projection to 2015)	Estimated no. of EZ jobs by qualification level			
		lower bound		upper bound	
		min	max	min	max
Qualification level					
level 4+	58%	7	41	23	109
level 3	13%	2	9	5	25
level 2	13%	2	9	5	24
level 1	12%	1	8	5	22
no qualifications	5%	1	3	2	9
Total	100%	12	72	39	189

Table 16 - skills demand in the digital and creative sector by qualification level, UKCES 2012; estimated number of EZ jobs in the ICT sector

In terms of specific competences required, it can be anticipated that these will cover a very wide spectrum. For this reason, it is helpful to think about these in terms of the job profiles that will most commonly be found in the vacancies that might be advertised by EZ employers. A few examples of these are reported below.

Typical job profiles in the EZ's target sectors			
ICT (top 10 professions) <sup>3</sup>	Health (top 15 professions) <sup>4</sup>	Advanced manufacturing <sup>5</sup>	Cogent (incl. Med tech & pharma.) <sup>6</sup>
Systems developers	Nurses	production managers	Production Managers
Senior Systems developers	Medical practitioners	works and maintenance managers	Site Managers
Project managers	Nursing auxiliaries and assistants	metal working production and maintenance fitters	Maintenance Managers
Systems administrators	Care assistants and home carers	mechanical engineers	Chemists, Physicists,
Business analysts	Receptionists	welding trades	Biochemists, Biologists
Systems architects/planners	Medical secretaries	metal working machine operatives.	Mechanical Engineers
Technical pre/post-sales support staff	Therapists n.e.c.		Production & Process Engineers
Software engineers	Hospital and health service managers		Chemical Engineers
Database administrators/analysts	Cleaners, domestics		Laboratory Technicians
Test analysts	General office assistants or clerks		Engineering Technicians
	Dental nurses		Quality Assurance Technicians
	Physiotherapists		
	Midwives		
	Filing & other records assists & clerks		
	Dental practitioners		

Table 17 - typical job profiles in the EZ's target sectors, UKCES 2012; e-Skills 2011; SEMTA 2010; Cogent 2011

<sup>3</sup> E-skills, Technology Insights, 2011

<sup>4</sup> UKCES, Sector Skills Insights: health and social care, 2012

<sup>5</sup> Sector Skills Council for Science, Engineering and Manufacturing Technologies (SEMTA), Current and Future Demand for Skills in the Science Based Industries, 2010

<sup>6</sup> Life Sciences and pharmaceuticals: a future skills review with recommendation to sustain growth in emerging technologies, 2010

## Methodological note

- The term ‘jobs’ refers to the number of people that are likely to be employed by firms in the Enterprise Zone and should not be intended as ‘additional jobs’ or ‘vacancies’;
- The definitions of the four ‘sectors’ used in sections 2 and 3 have been sourced from:
  - Health and allied industries: [UK Commission for Employment and skills \(UKCES\), Sector Skills Insights 2012: Health and Social care, 2012](#)
  - Advanced Manufacturing: [UKCES, Sector Skills Insights: Advanced Manufacturing, 2012](#)
  - Life Sciences Manufacturing: [Cogent Industry Factsheet 2010;](#)
  - ICT: [e-Skills, Technology insights 2011;](#) [UKCES Skills insights 2012: Digital and creative \(occupational structure section only\)](#)
- The sector size structures used to estimate the potential number of jobs in each business size band (presented in section 1) have been calculated using the following definitions of the four sectors:

Sector	Sector definition (SIC 2007 code)
Health and allied industries	86: Human Health activities
Advanced manufacturing	10-33; 72: Scientific research and development
Life sciences manufacturing	21: Manufacture of basic pharmaceutical products and pharmaceutical preparations; 266 : Manufacture of irradiation, electromedical and electrotherapeutic equipment; 325 : Manufacture of medical and dental instruments and supplies; 7211: Research and experimental development on biotechnology;
ICT	61 : Telecommunications; 62 : Computer programming, consultancy and related activities; 63 : Information service activities; 95 : Repair of computers and personal and household goods

- Figures may not sum up to 100% or the total count of jobs due to rounding;
- The approach here used focuses on the characteristics of the sectors (as well as of the location where relevant) which are expected to dominate the future Enterprise Zone’s business base. This approach was preferred to the traditional employment densities method for the following main reasons:
  - Job estimates based on employment densities are best suited for planning rather than for skills policy purposes. These help provide a picture of the employment capacity of the space given its use class structure, but are less helpful as a decision-making tool on skills and employment planning;
  - As the Enterprise Zone sites are still under development, there is a high degree of uncertainty as to the use class structure of the space. It is also understood that, within the aims of the Enterprise Zone, Harlow Council intends to provide as much flexibility as possible as to the layout and use class of premises (which are expected to include B1 a,

b, c and B2 uses), which suggests that the use class aspect is somewhat secondary to the sector mix aspect of the premises.

- It is understood that the priority sectors targeted by the Enterprise Zone are Health and allied industries, Advanced manufacturing, Life sciences manufacturing (particularly pharmaceuticals and medical technology manufacturing) and Information and Communication technologies.

Therefore, the job estimates here presented are based on the assumption that all firms that will be present on the Enterprise zone will operate in one of the four sectors. In particular, based on the available information, it is expected that most of the businesses being set up in/relocating to the Enterprise Zone will be from the advanced manufacturing - particularly life sciences manufacturing (which includes Pharmaceuticals and medical technology manufacturing) - and health and allied industries sectors, with some presence from the ICT sector<sup>7</sup>. This is reflected in the job estimates here presented by assigning to each of these four sectors the following weights:

Sector	Weight (expected share of business base in EZ)
Health and Allied industries	0.3
Advanced manufacturing	0.3
Life sciences manufacturing (Pharmaceuticals and Medical Technology)	0.2
ICT	0.2

This assumption introduces an important limitation in the methodology, as:

- it is highly likely that other types of businesses might be attracted to the EZ premises, and a decision has been made in principle to not prevent these from seeking this opportunity. At the same time, since it is understood that there will be a cluster policy in place to ensure that opportunities in the EZ are marketed primarily to firms from target sectors, we anticipate that the future sector mix in the EZ will be dominated by these.
- It is highly likely that the shares of businesses taken up by each of the four sectors will be different from the ones proposed, as, to the best of our knowledge, there have only been expressions of interest from a few businesses at this stage. However, as the weights given to each sectors have been made explicit in the calculation, the estimates here presented can be adjusted to reflect different shares should more information become available in the future.
- All estimates should be taken to refer to the medium term (2015-2020), when the future EZ cluster is expected to become fully functional.

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<sup>7</sup> [Enterprise West Essex @ Harlow factsheet, October 2011](#)