

The African Observatory
of Science, Technology
and Innovation (AOSTI)



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Strengths and weaknesses of African countries /regions in scientific fields

Addendum-1 to Assessment of Scientific
Production in the African Union,
2005-2010



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Dr Philippe Kuhutama Mawoko
Interim Director, AOSTI

CONTENTS

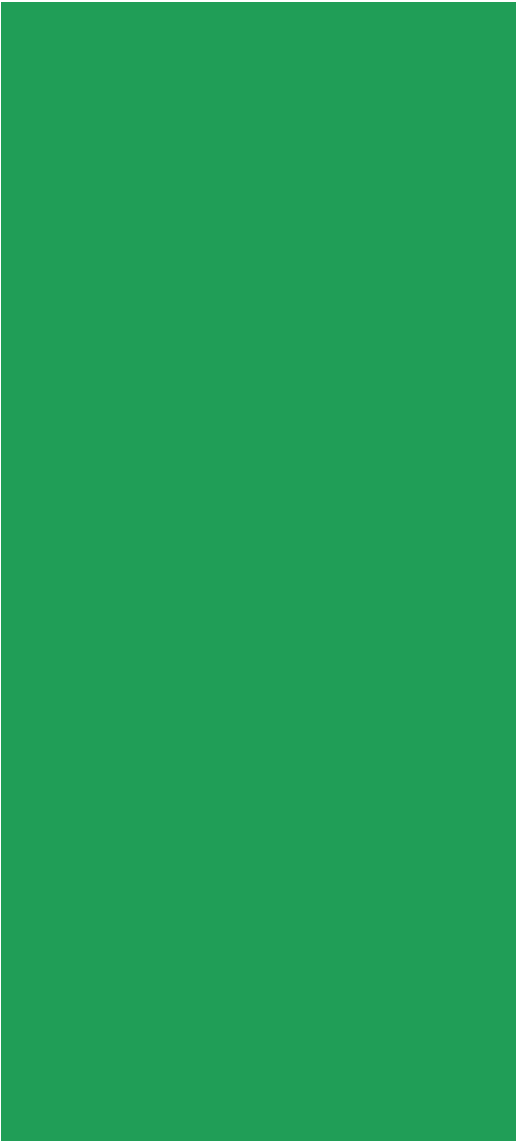
Acknowledgements	3	GUINEA	34
Interpretation of Positional Analysis	7	GUINEA-BISSAU	35
AFRICAN UNION	8	KENYA	36
Arab Maghreb Union	10	LIBYA	37
Common Market for Eastern and Southern Africa	11	MADAGASCAR	38
Community of Sahelo-Saharan States	12	MALAWI	39
East African Community	13	MALI	40
Economic Community of Central African States	14	MAURITIUS	41
Economic Community of West African States	15	MOZAMBIQUE	42
Intergovernmental Authority on Development	16	NAMIBIA	43
Southern African Development Community	17	NIGER	44
ALGERIA	19	NIGERIA	45
ANGOLA	20	UGANDA	46
BENIN	21	RWANDA	47
BOTSWANA	22	SENEGAL	48
BURKINA FASO	23	SEYCHELLES	49
CAMEROON	24	SIERRA LEONE	50
CENTRAL AFRICA REPUBLIC	25	SUDAN	51
REPUBLIC OF CONGO	26	SOUTH AFRICA	52
COTE D'IVOIRE	27	SWAZILAND	53
DEMOCRATIC REPUBLIC OF CONGO	28	TOGO	54
EGYPT	29	TUNISIA	55
ETHIOPIA	30	TANZANIA	56
GABON	31	ZAMBIA	57
GAMBIA	32	ZIMBABWE	58
GHANA	33		

In this addendum, graphical techniques known as positional analysis are used to facilitate the interpretation of the concepts of the “relative strengths and weaknesses of African countries/regions in scientific fields” as introduced in the main document entitled:

“Assessment of Scientific Production in the African Union, 2005–2010”.

The definitions of the various concepts used in this addendum and details on the grouping of scientific fields are found in the main document.

“a picture is worth a thousand words”

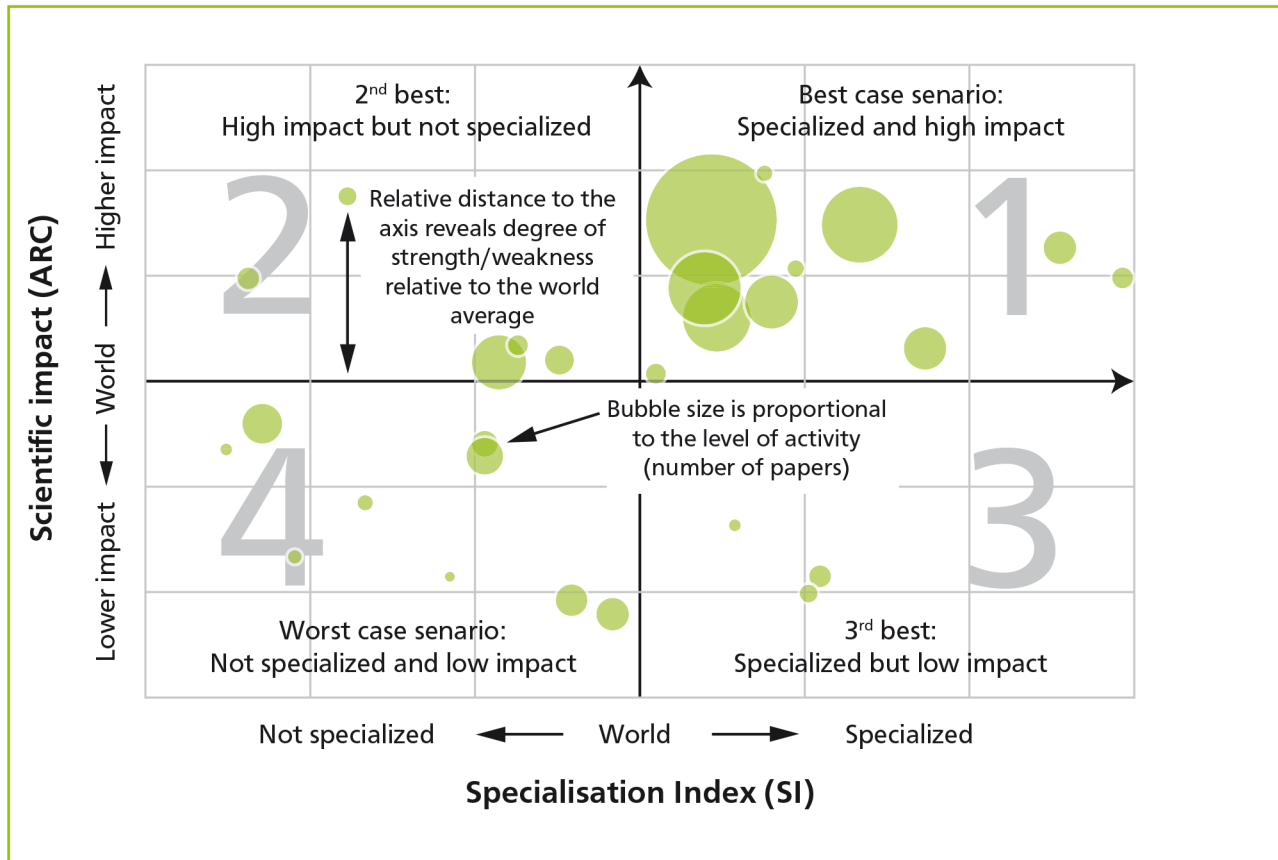


What makes the positional analysis handy is its power to visualised and tell the story of scores on three indicators in a two-dimensional space.

We let the horizontal axis corresponds to the specialisation index (SI) and the vertical axis to the scientific impact or impact factors of journals where the papers were published (i.e. ARC or ARIF). The two axes intersect at $SI=1$ and $ARC=1$ and form four quadrants as pictured on page 7.

The third dimension is obtained by making the size of data points in the graph proportional to the number of publications produced by the country/region in the corresponding scientific fields.

Interpretation of Positional Analysis



Quadrant 1:

Located at the top right of the graph, this quadrant is synonymous with excellence. A country in this quadrant specializes in the given domain and its activities have a high impact, meaning that their papers are more frequently cited than the world average in this field.

Quadrant 2:

Located at the top left of the graph, this quadrant is synonymous with high-impact scientific production, but the country is not specialized in the field.

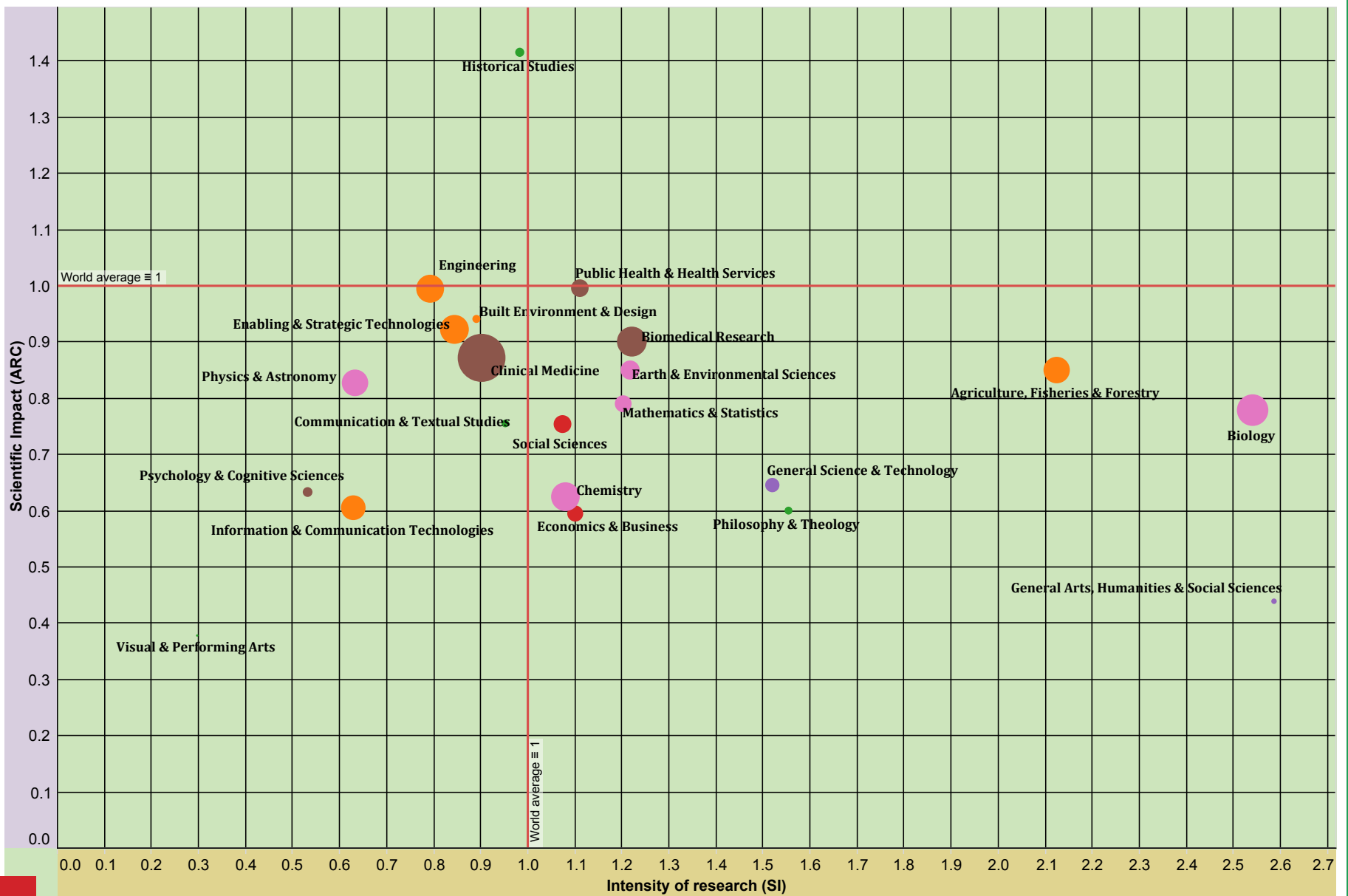
Quadrant 3:

Located at the bottom right of the graph, this quadrant signals specialization in the field, whereas the country/region's impact is below the world average.

Quadrant 4:

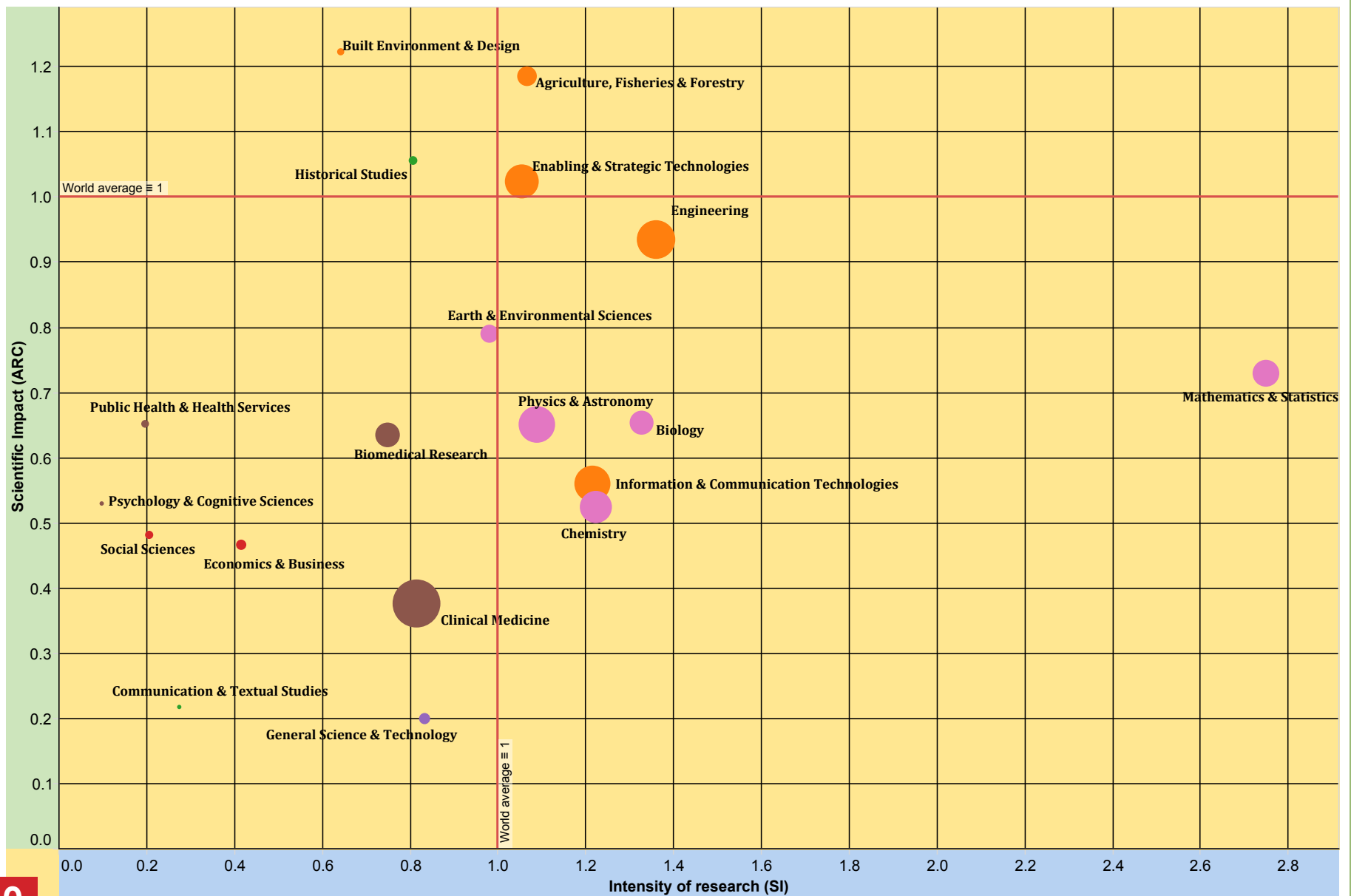
Located at the bottom left of the graph, this quadrant indicates that the country does not specialize in the given area and that its impact is below the world average.

African Union

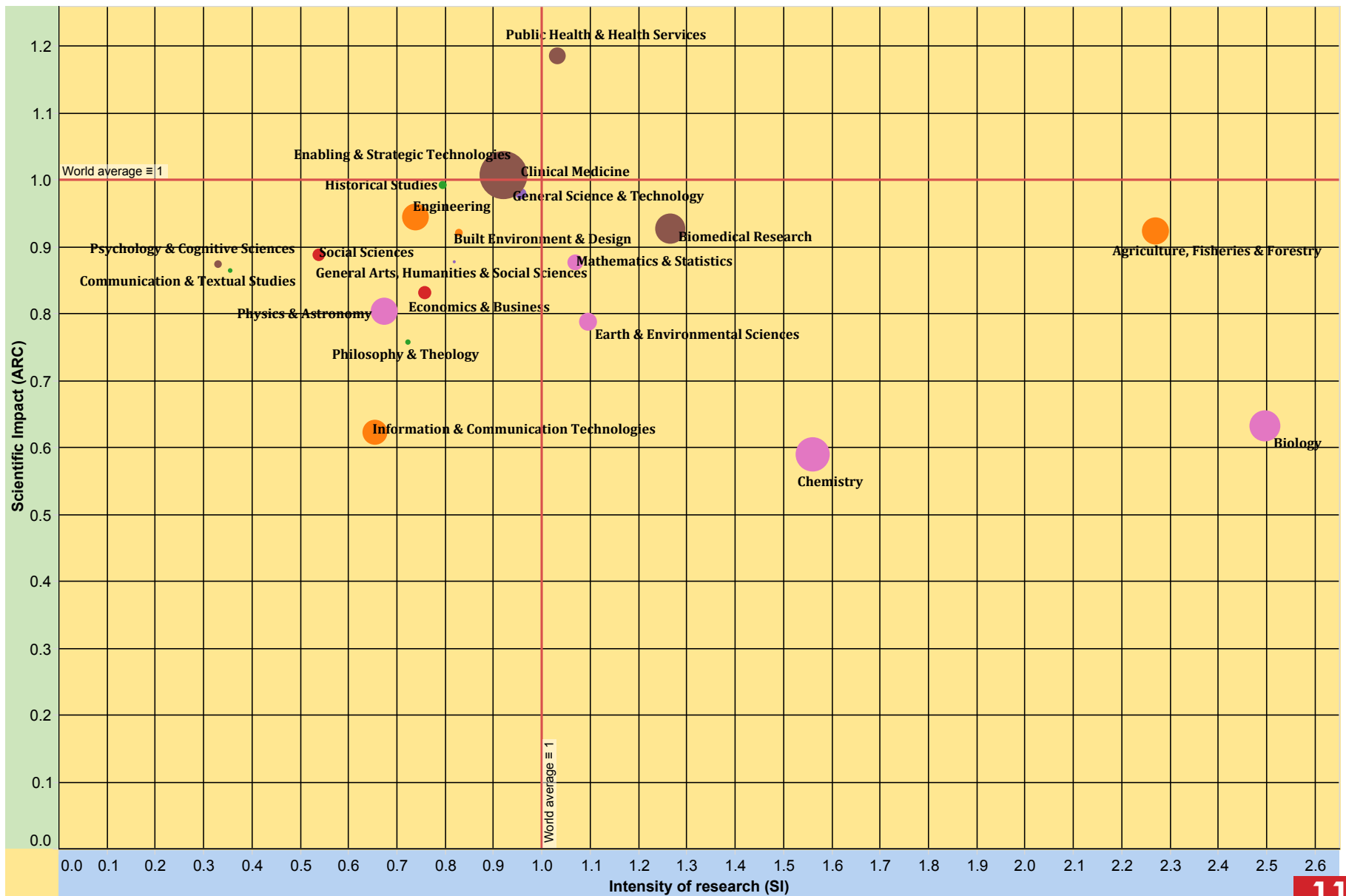


Regional Economic Communities

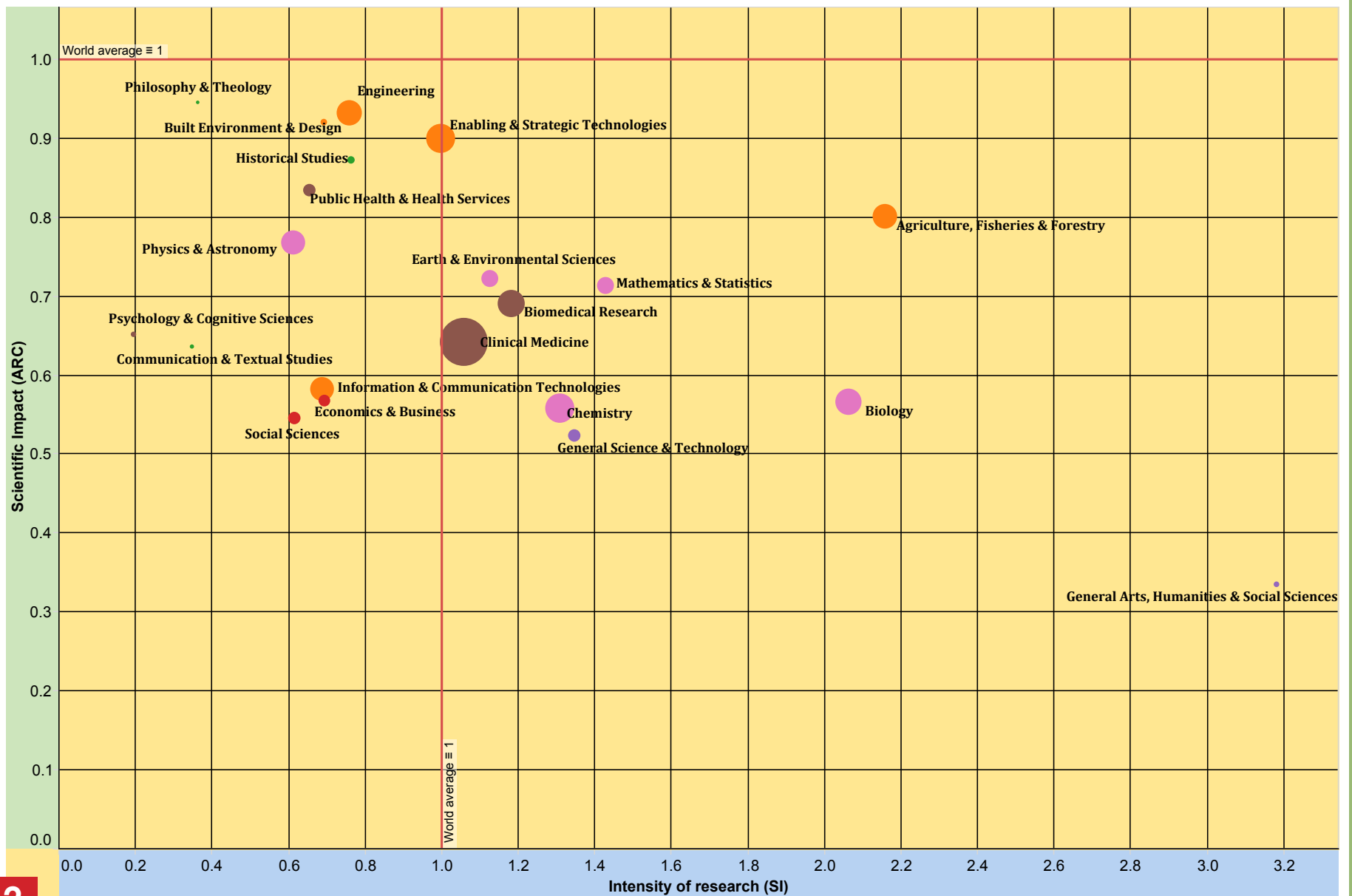
Arab Maghreb Union



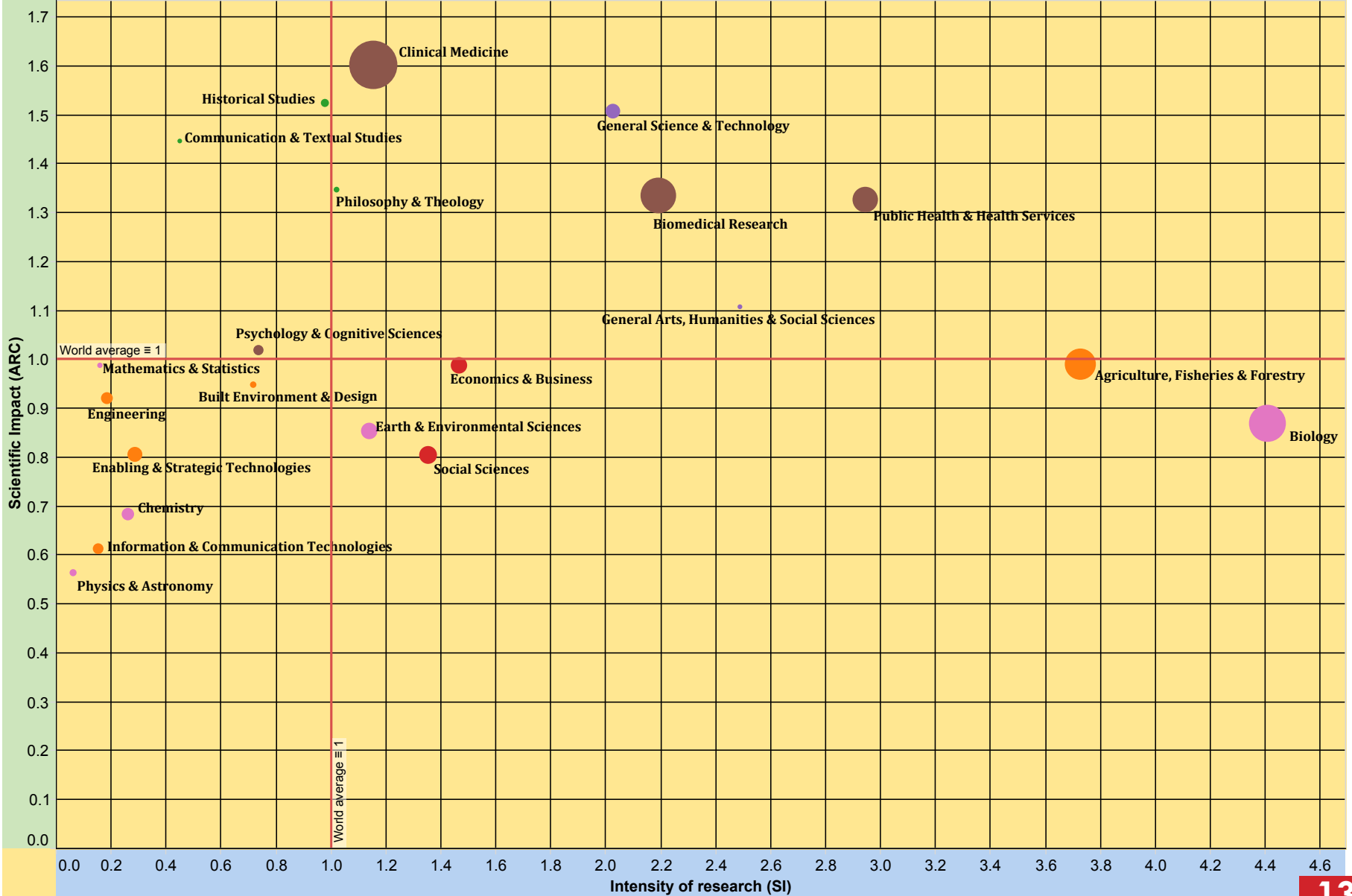
Common Market for Eastern and Southern Africa



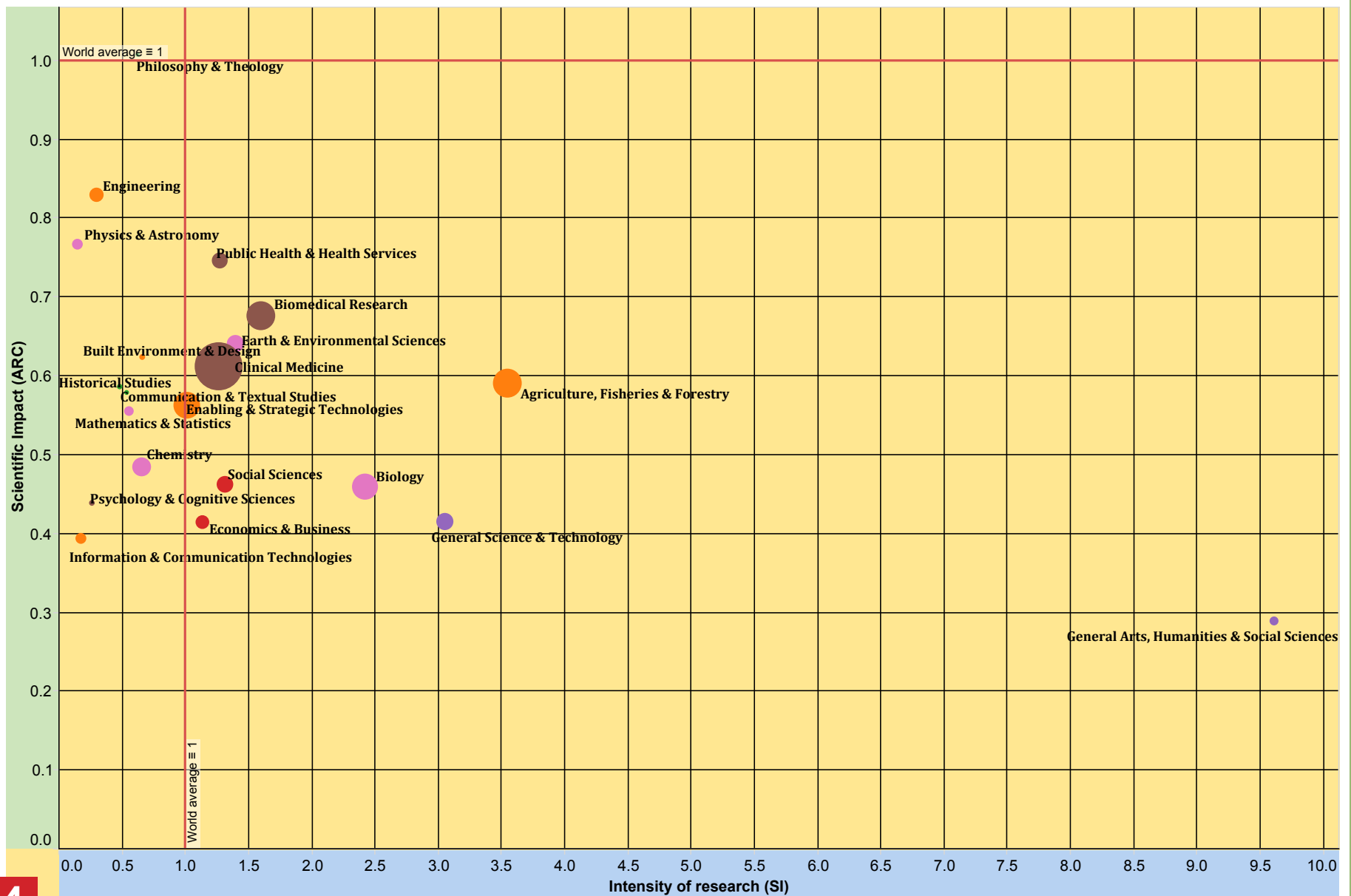
Community of Sahel-Saharan States



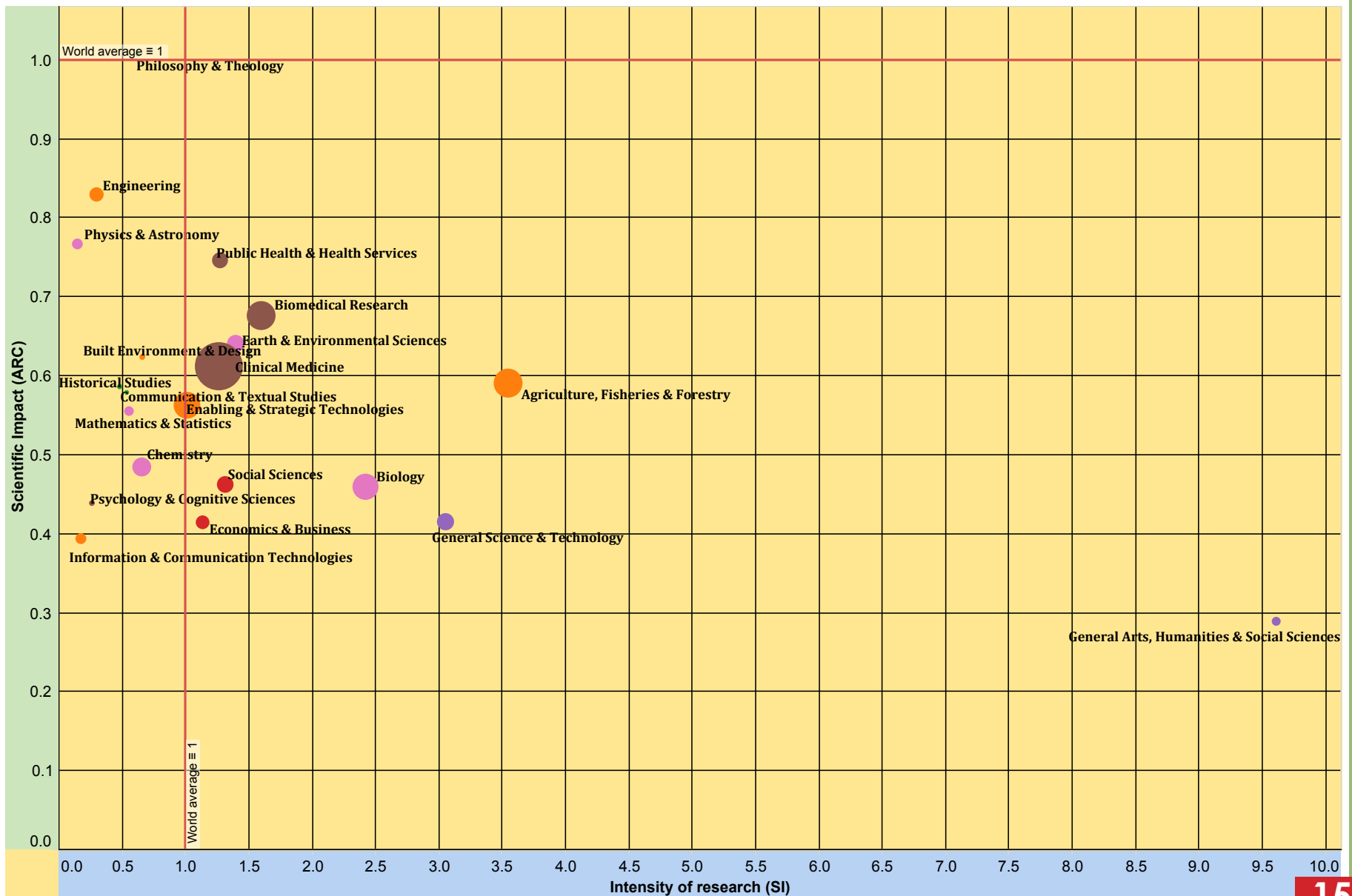
East African Community



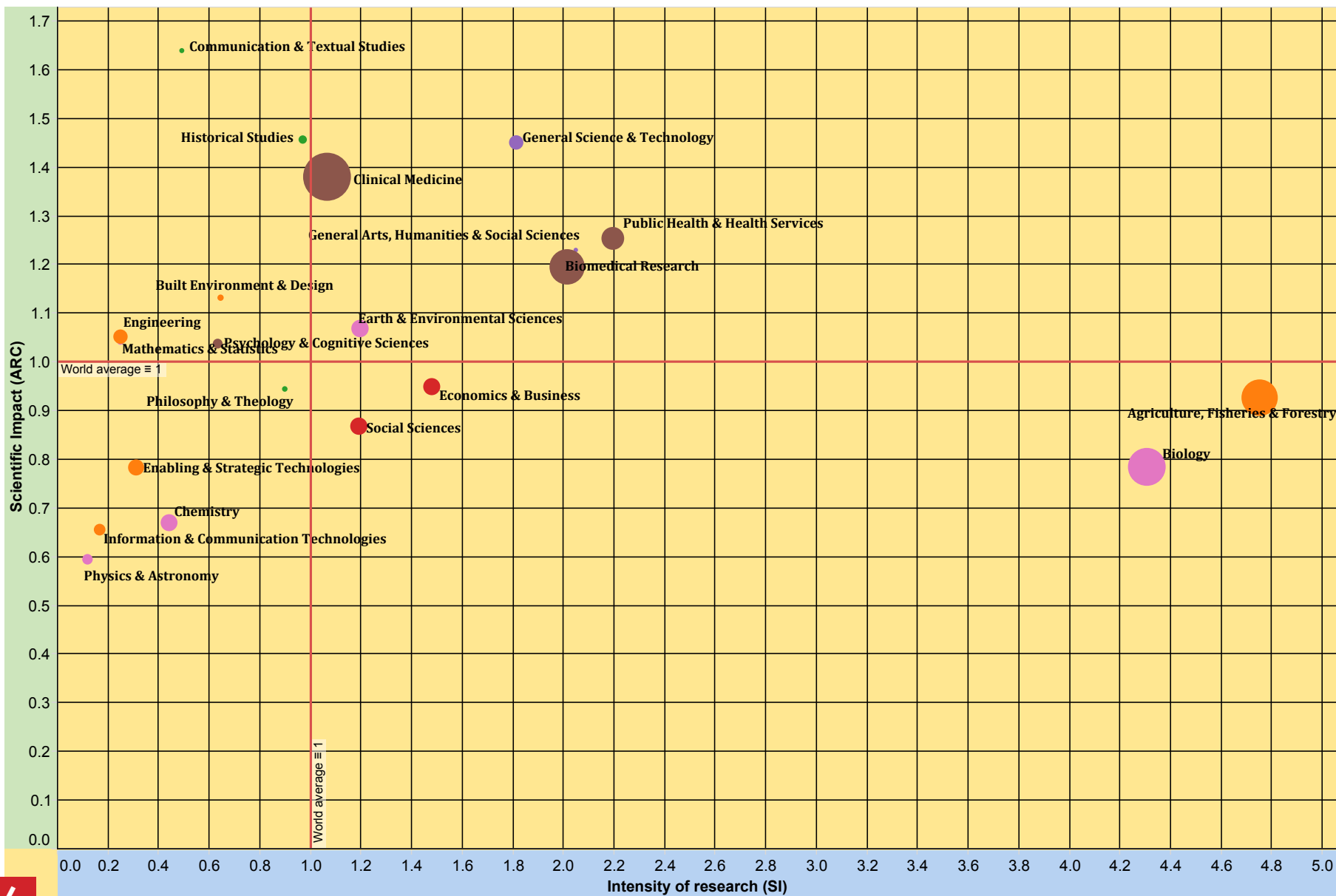
Economic Community of Central African States



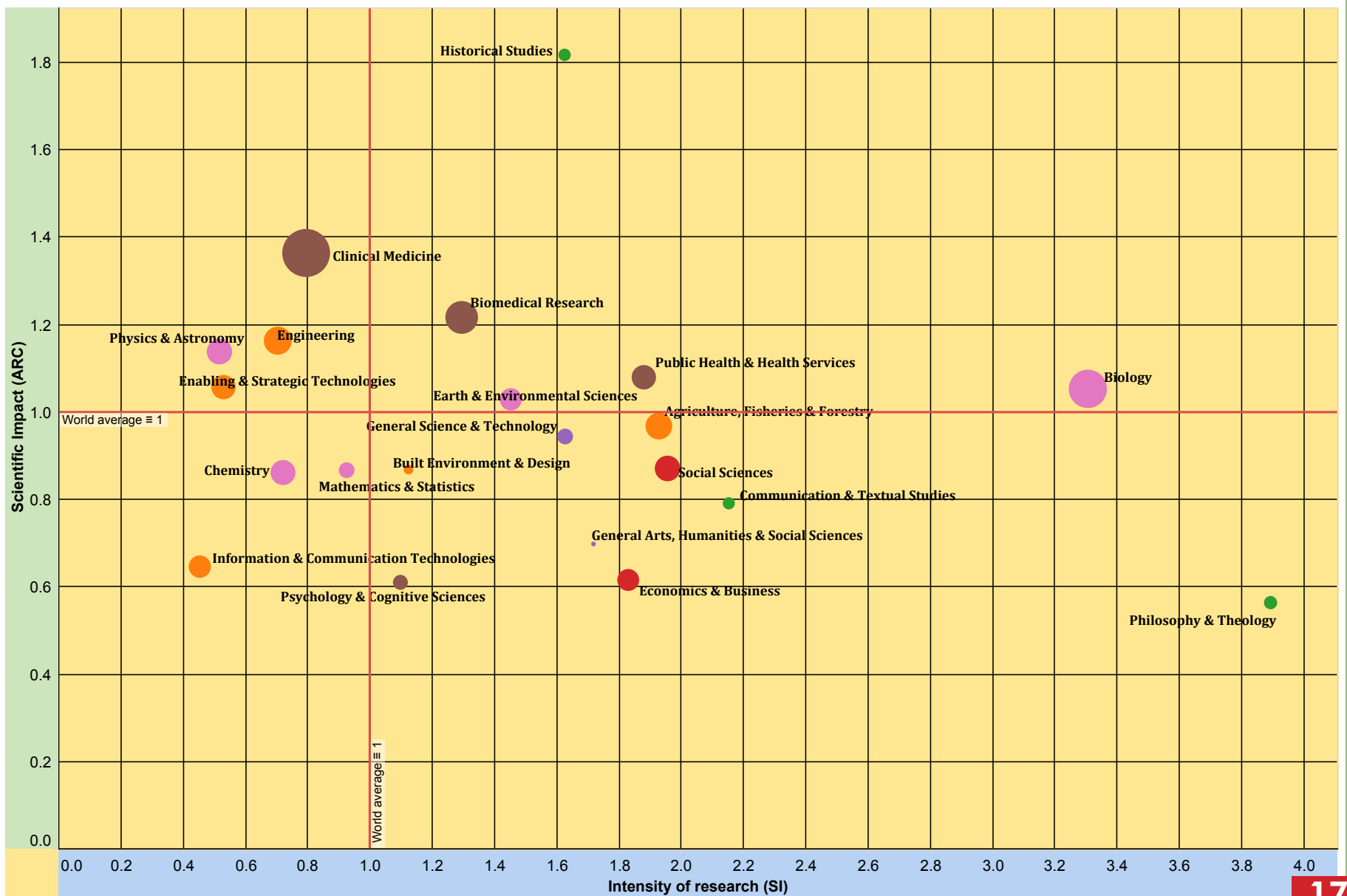
Economic Community of West African States



Intergovernmental Authority on Development



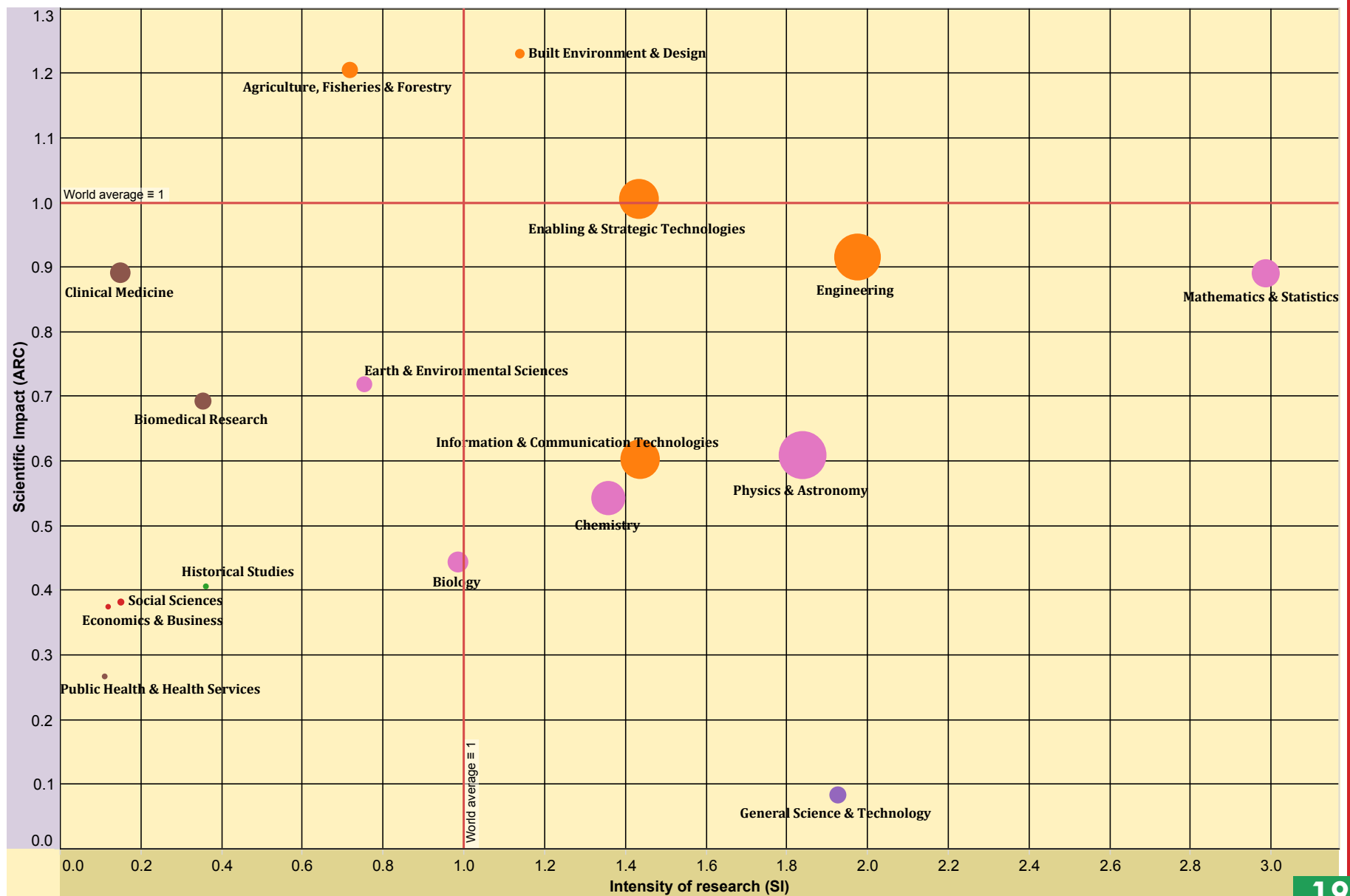
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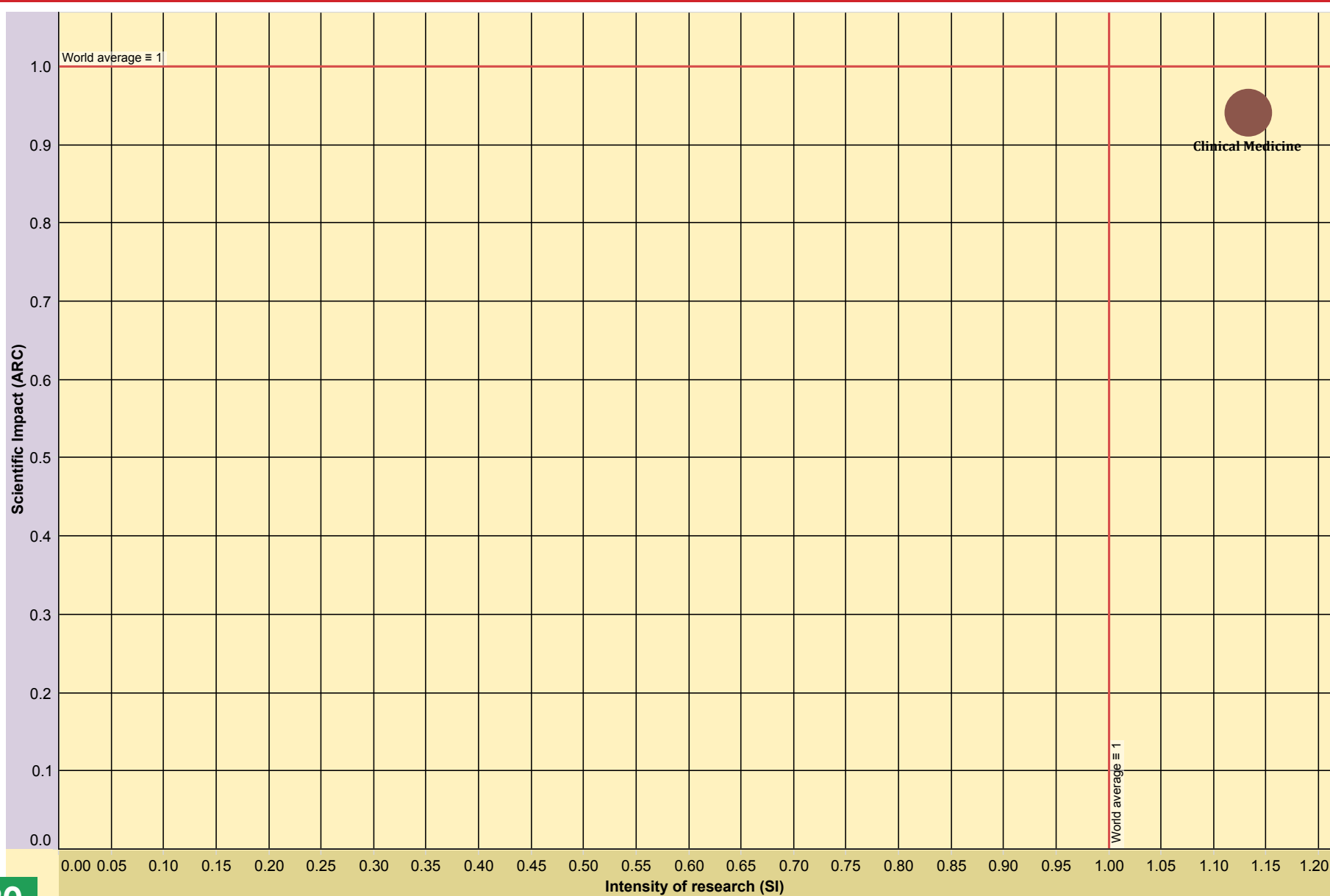
African Union Member States

Countries included in the analysis have more than 30 papers over the period under consideration.

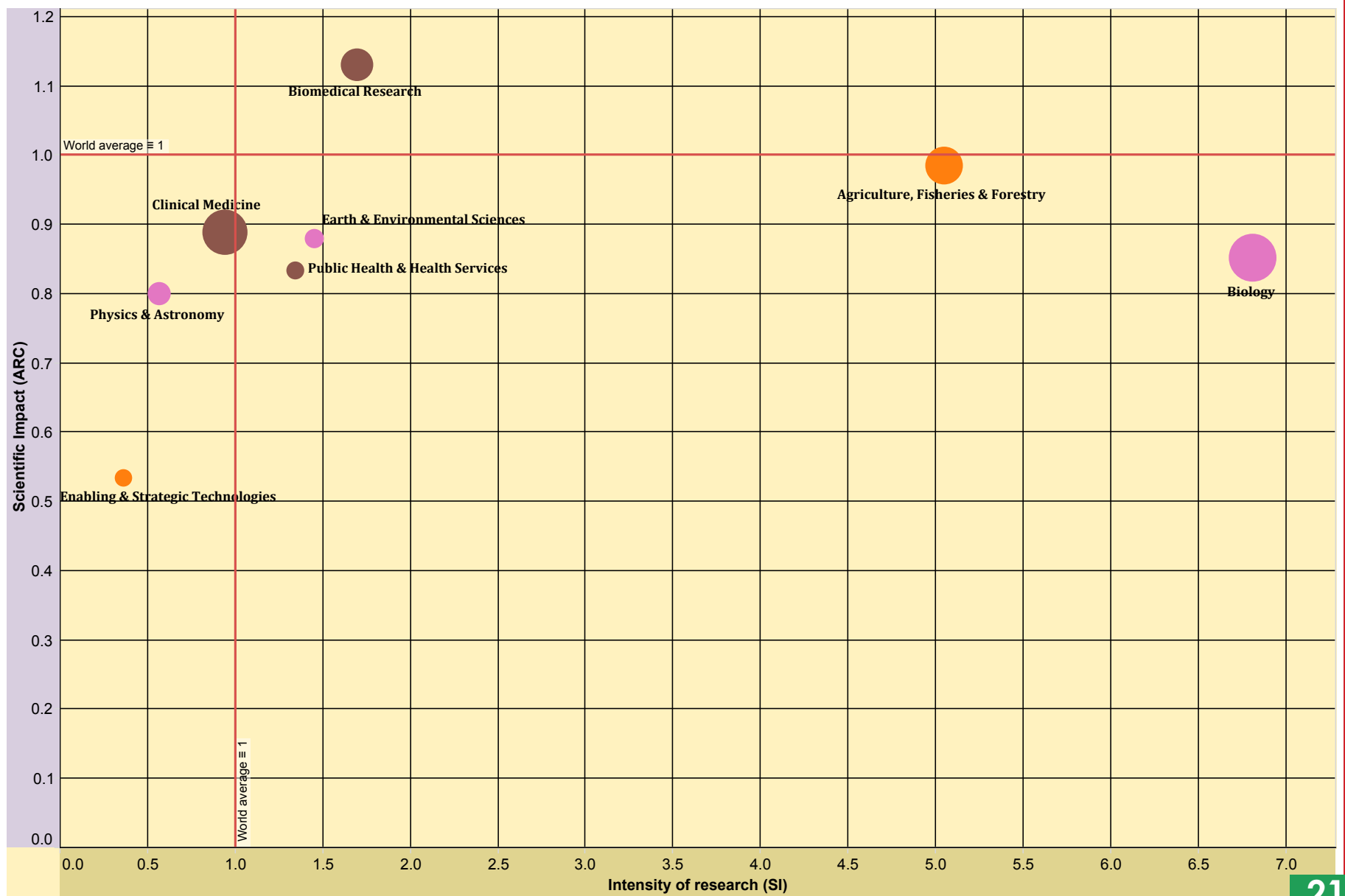
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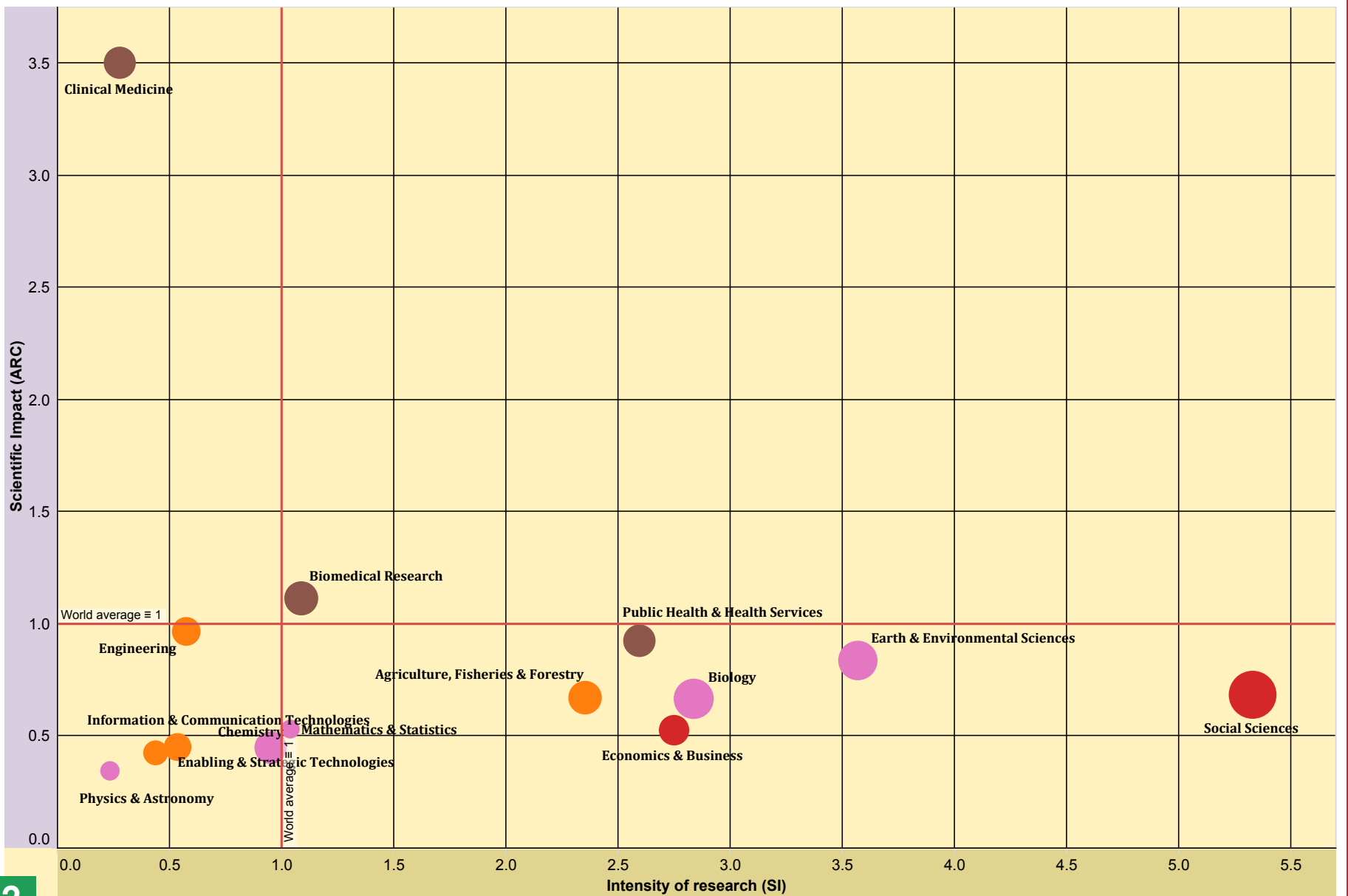
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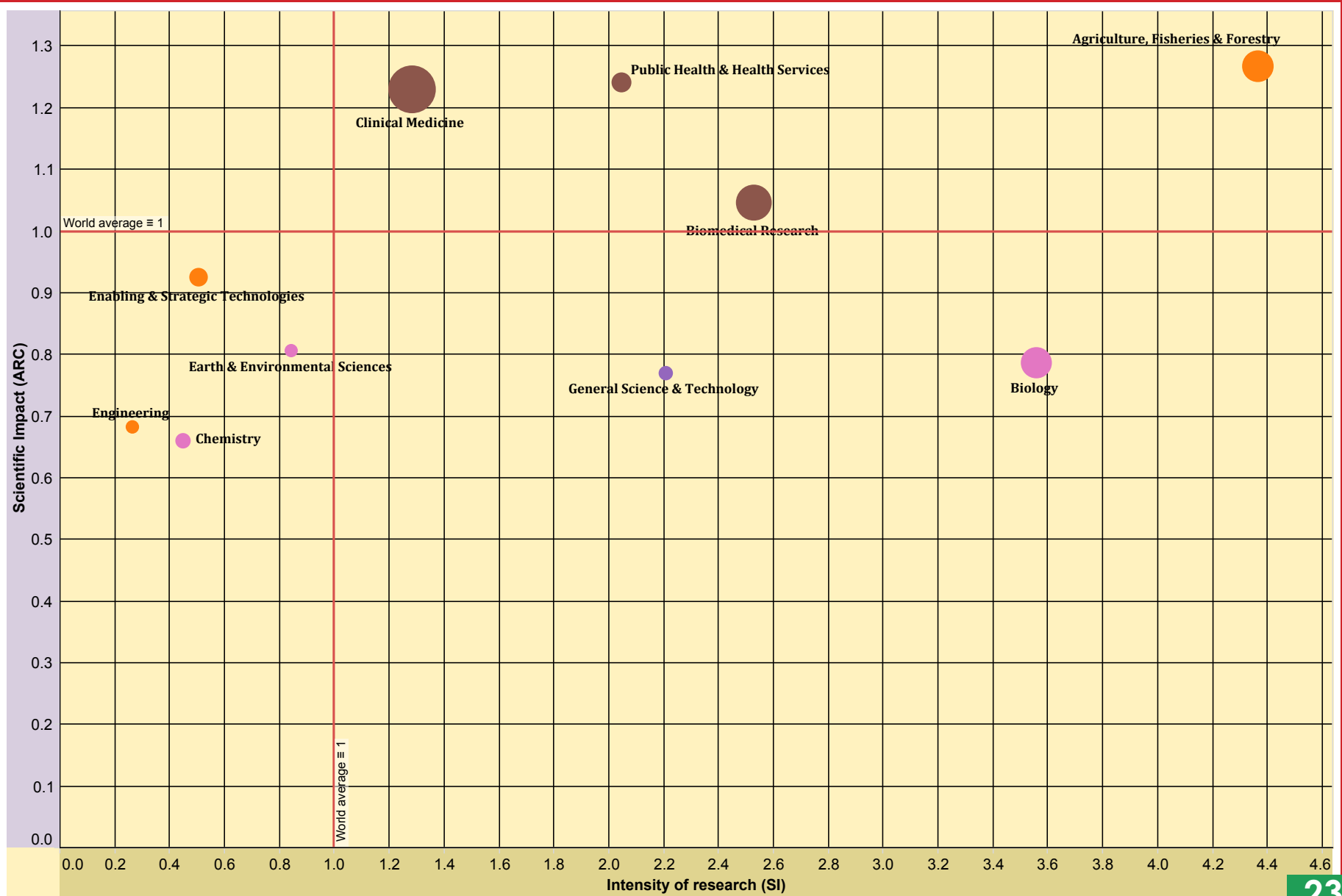
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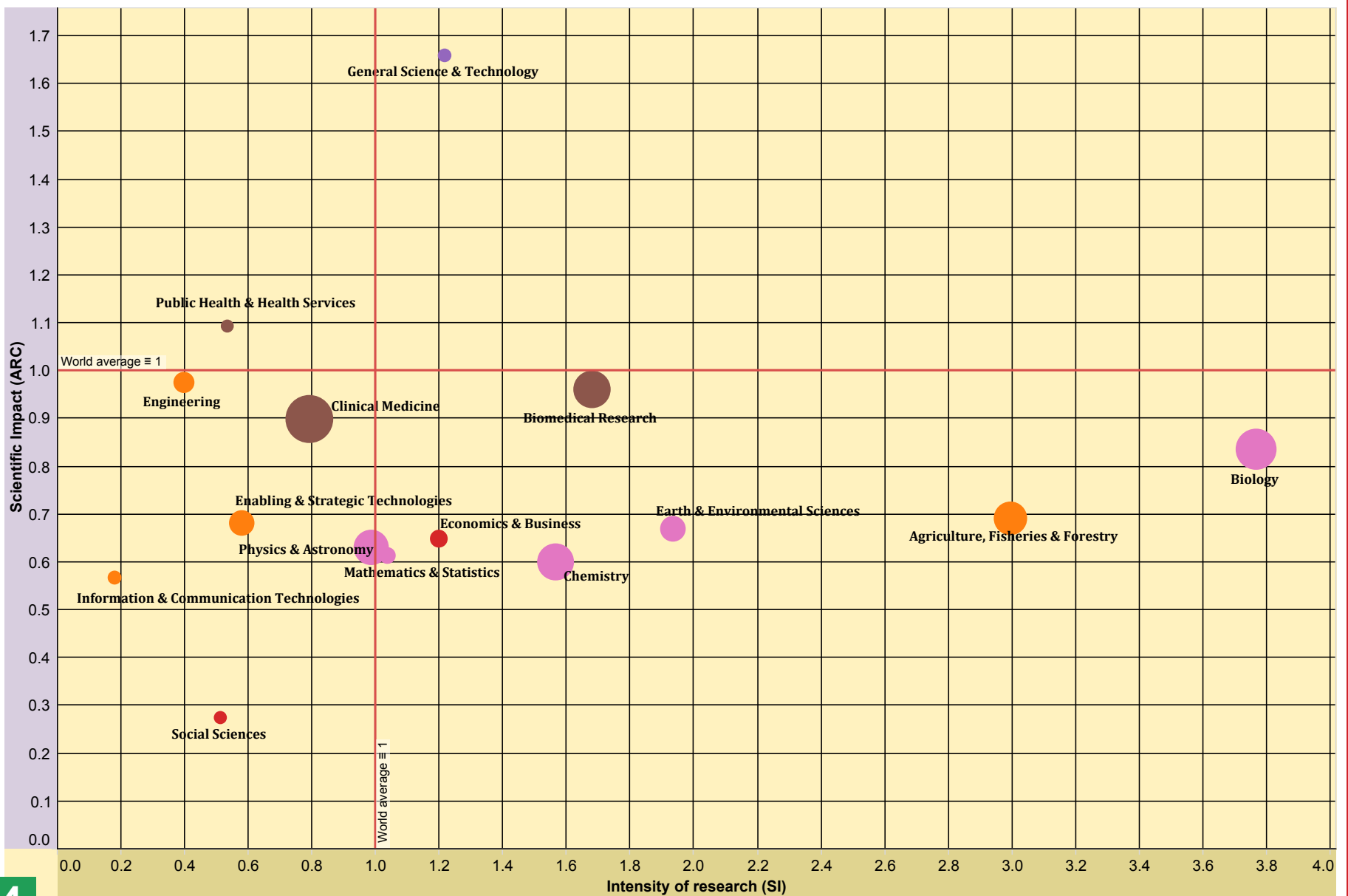
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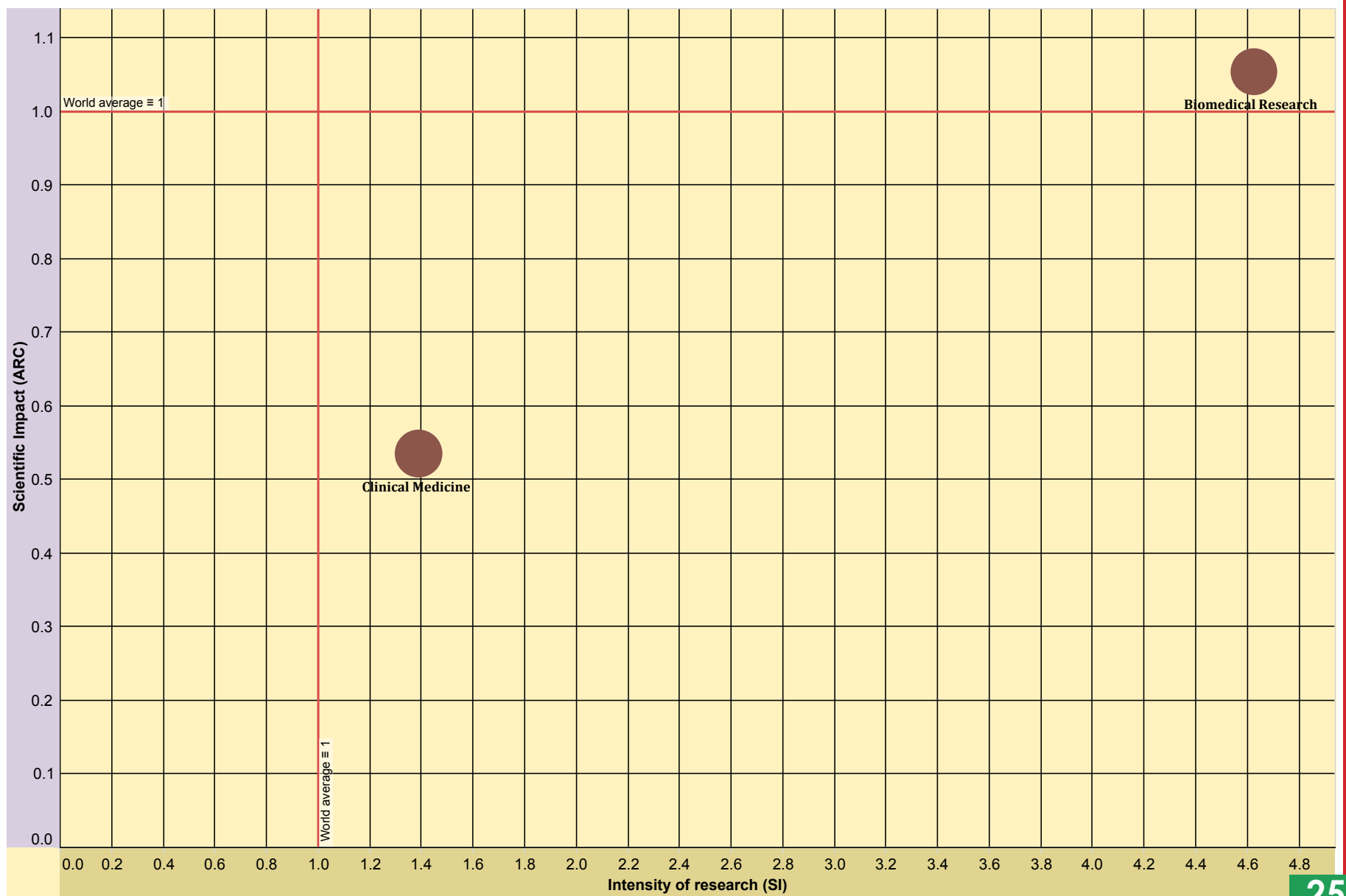
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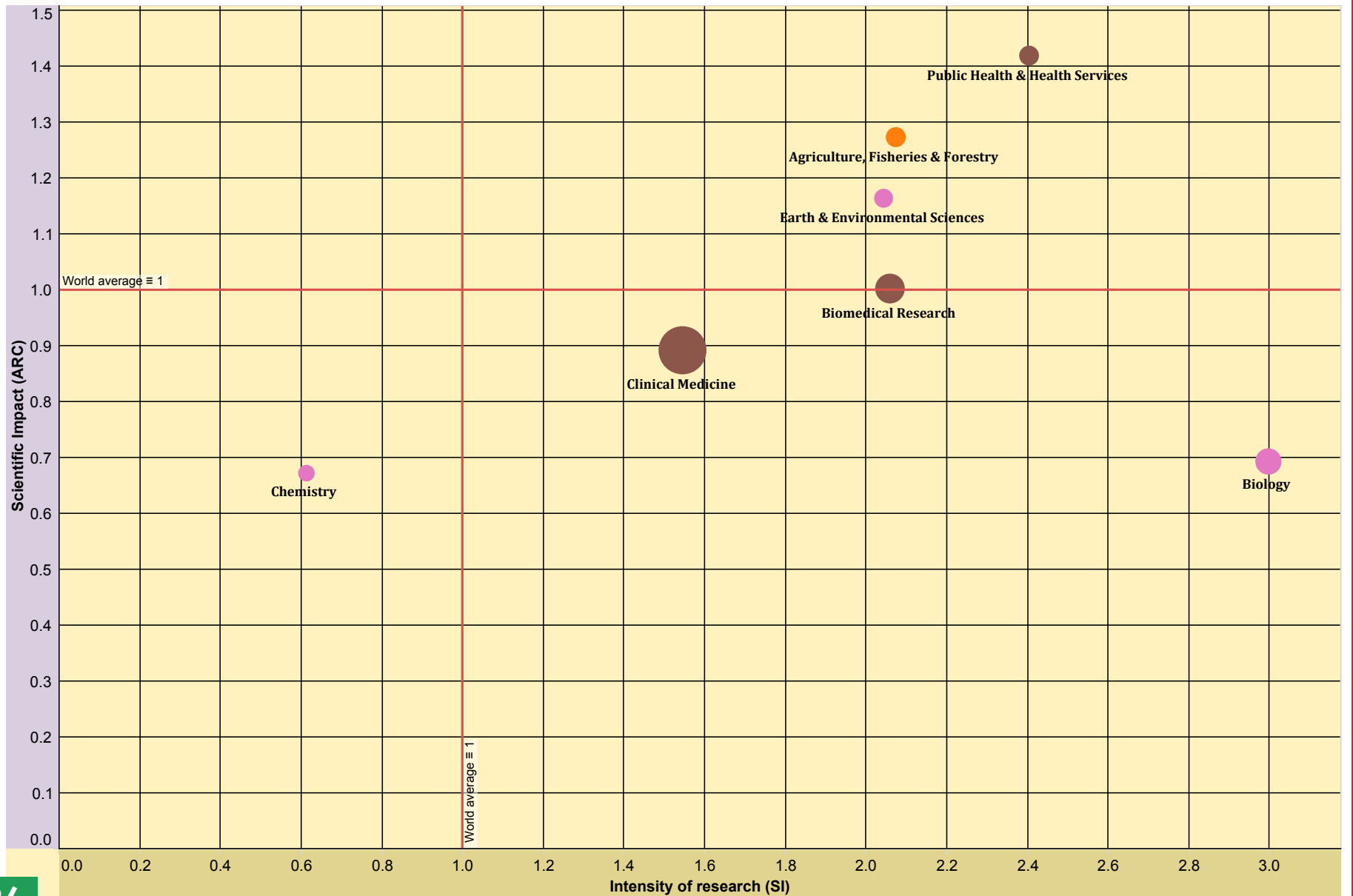
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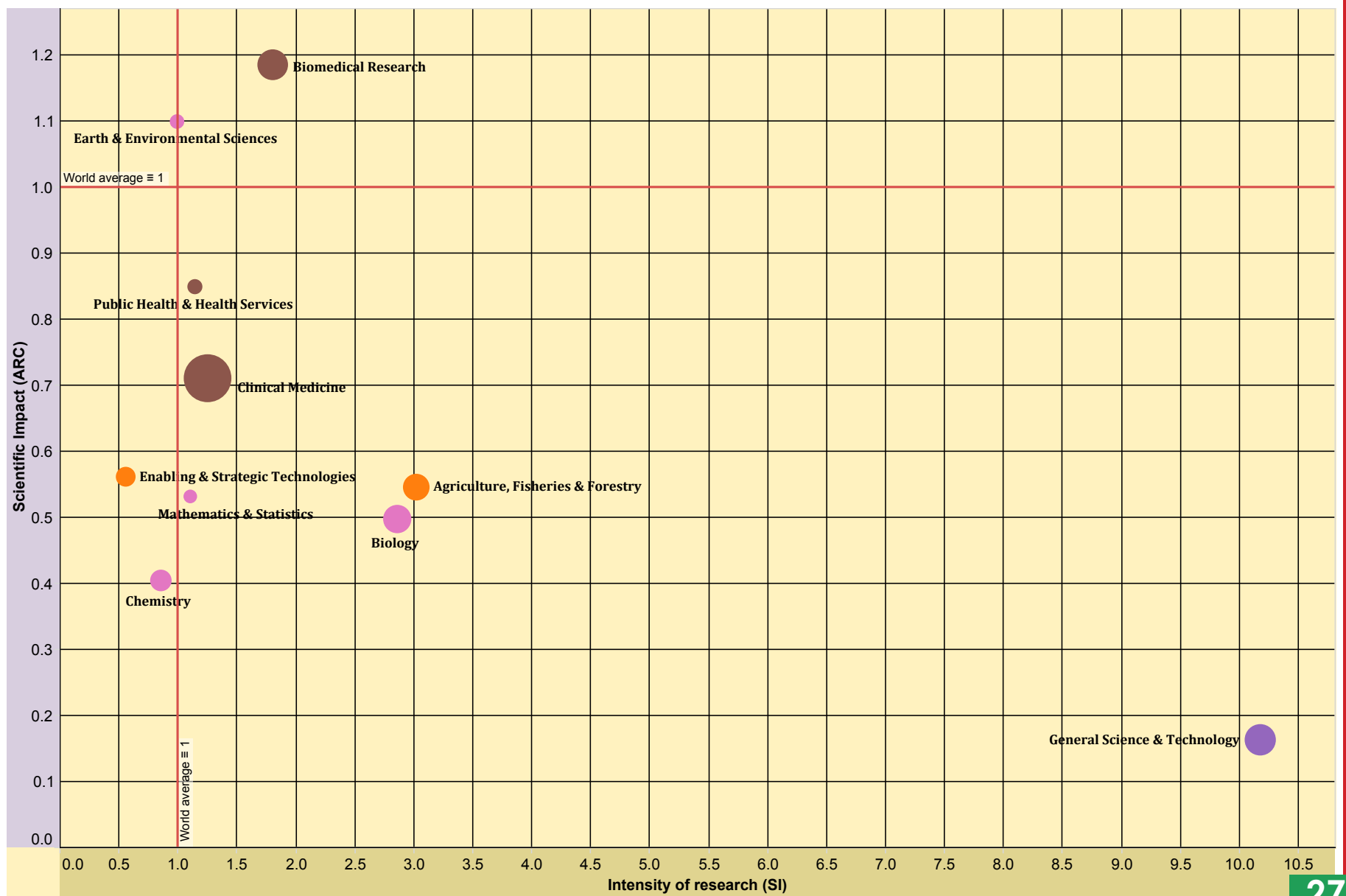
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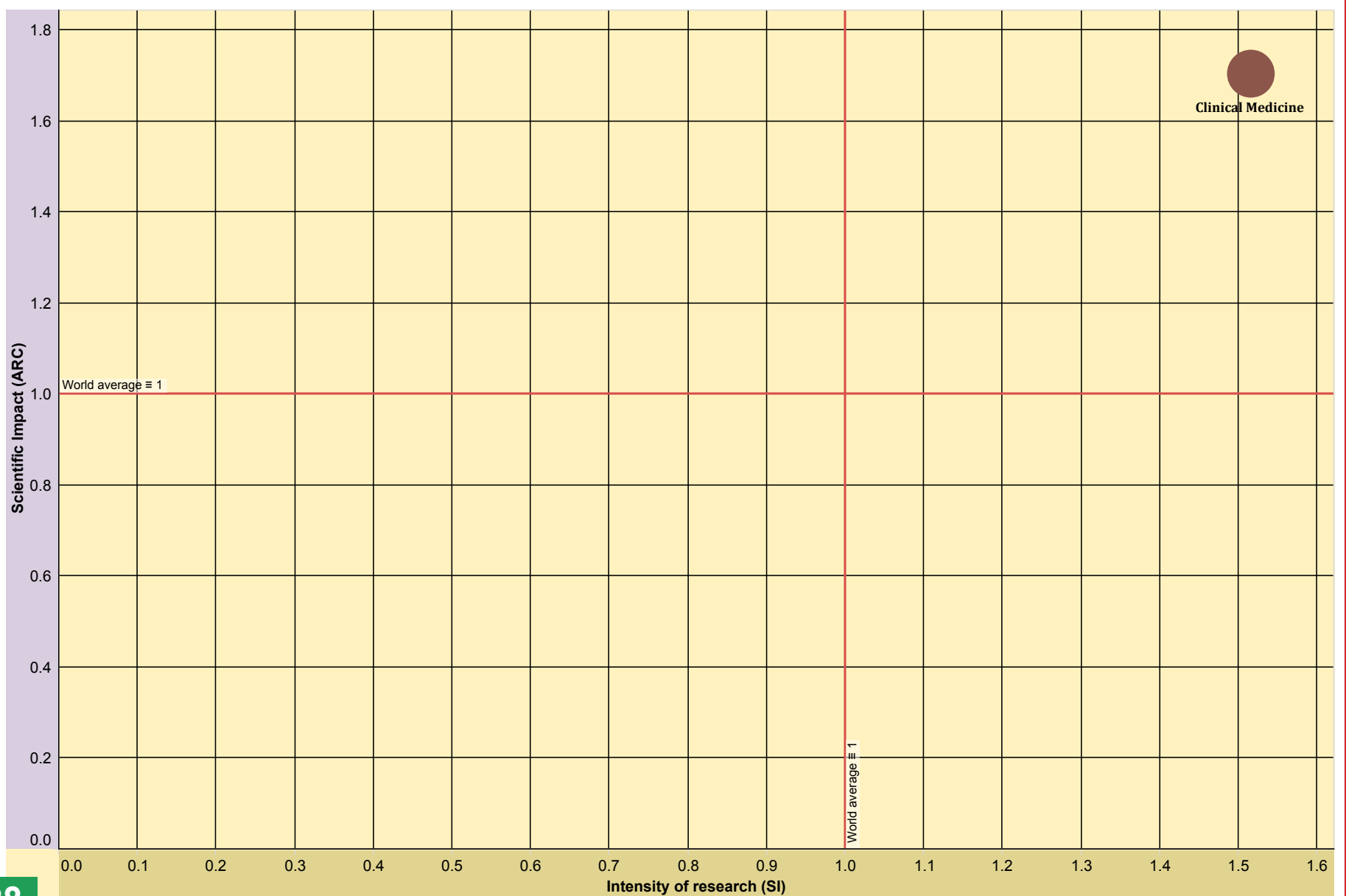
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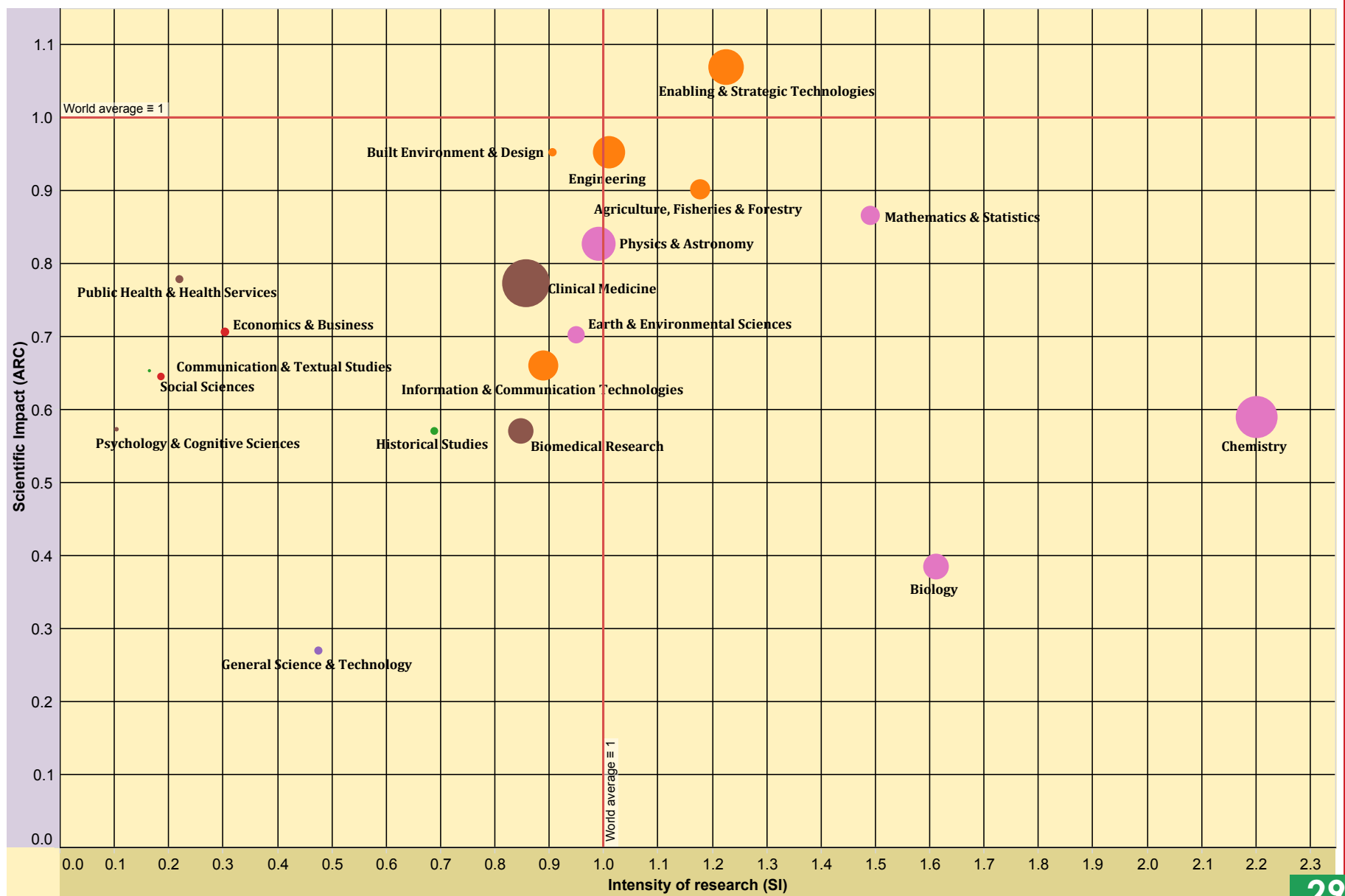
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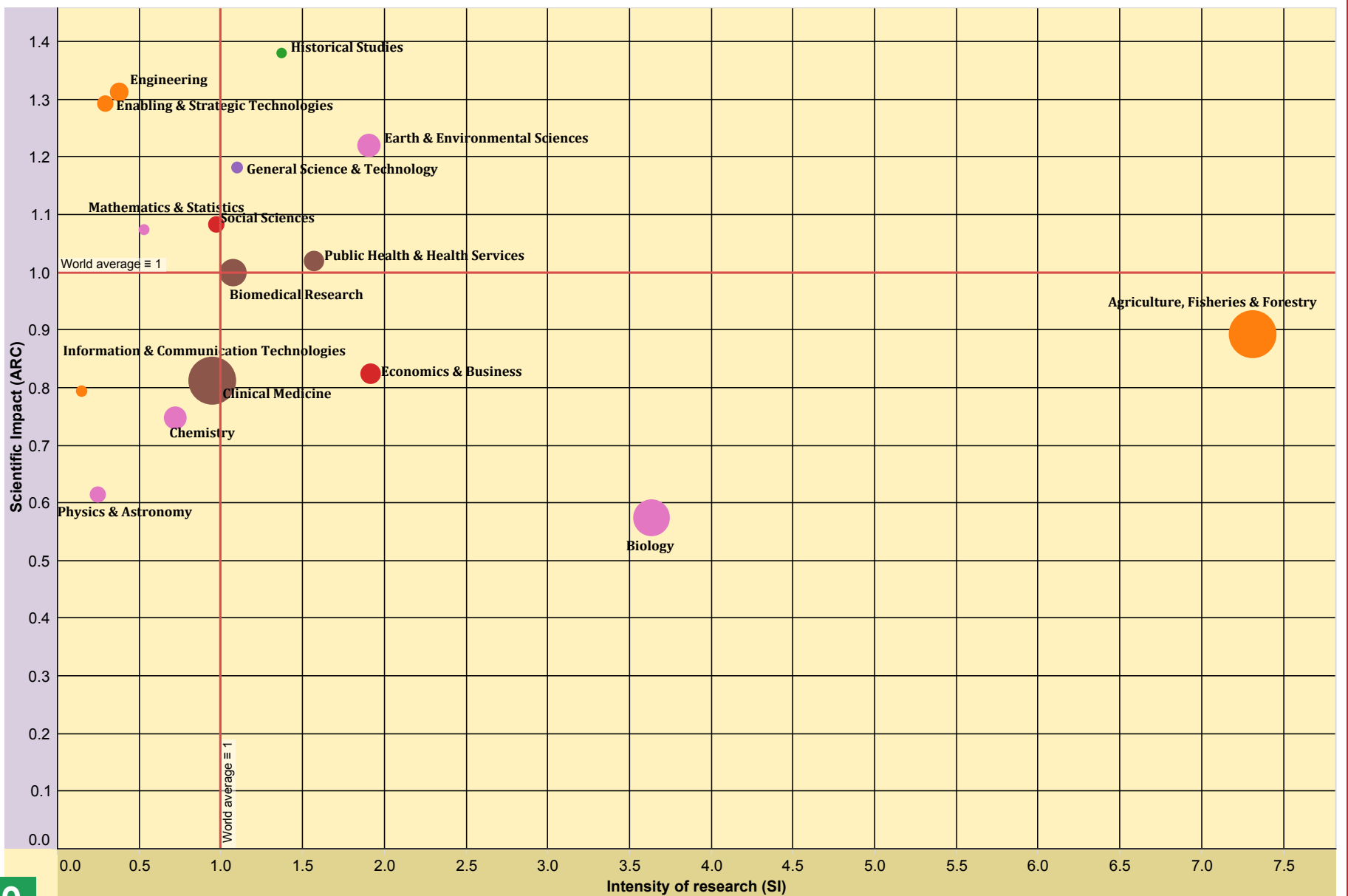
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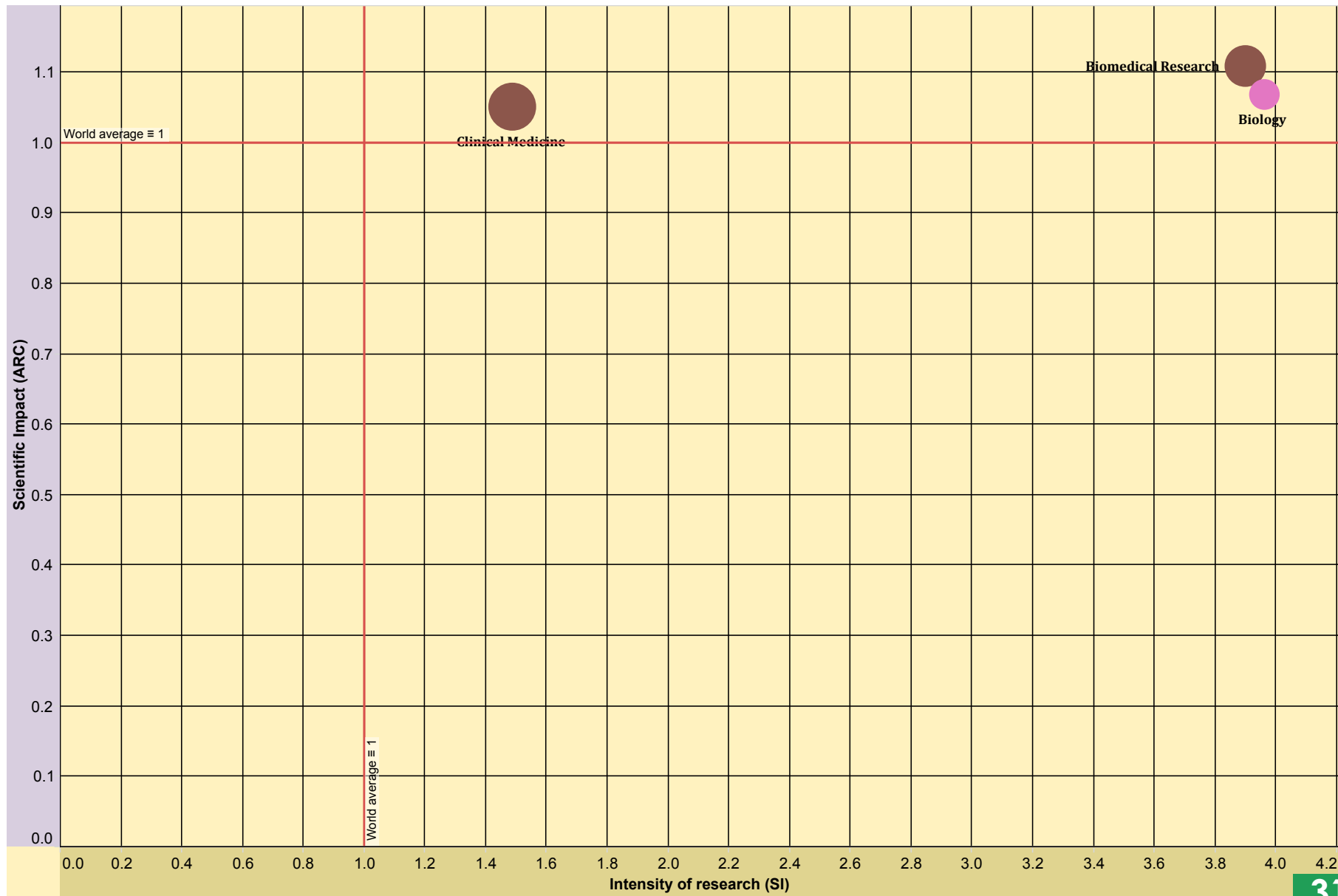
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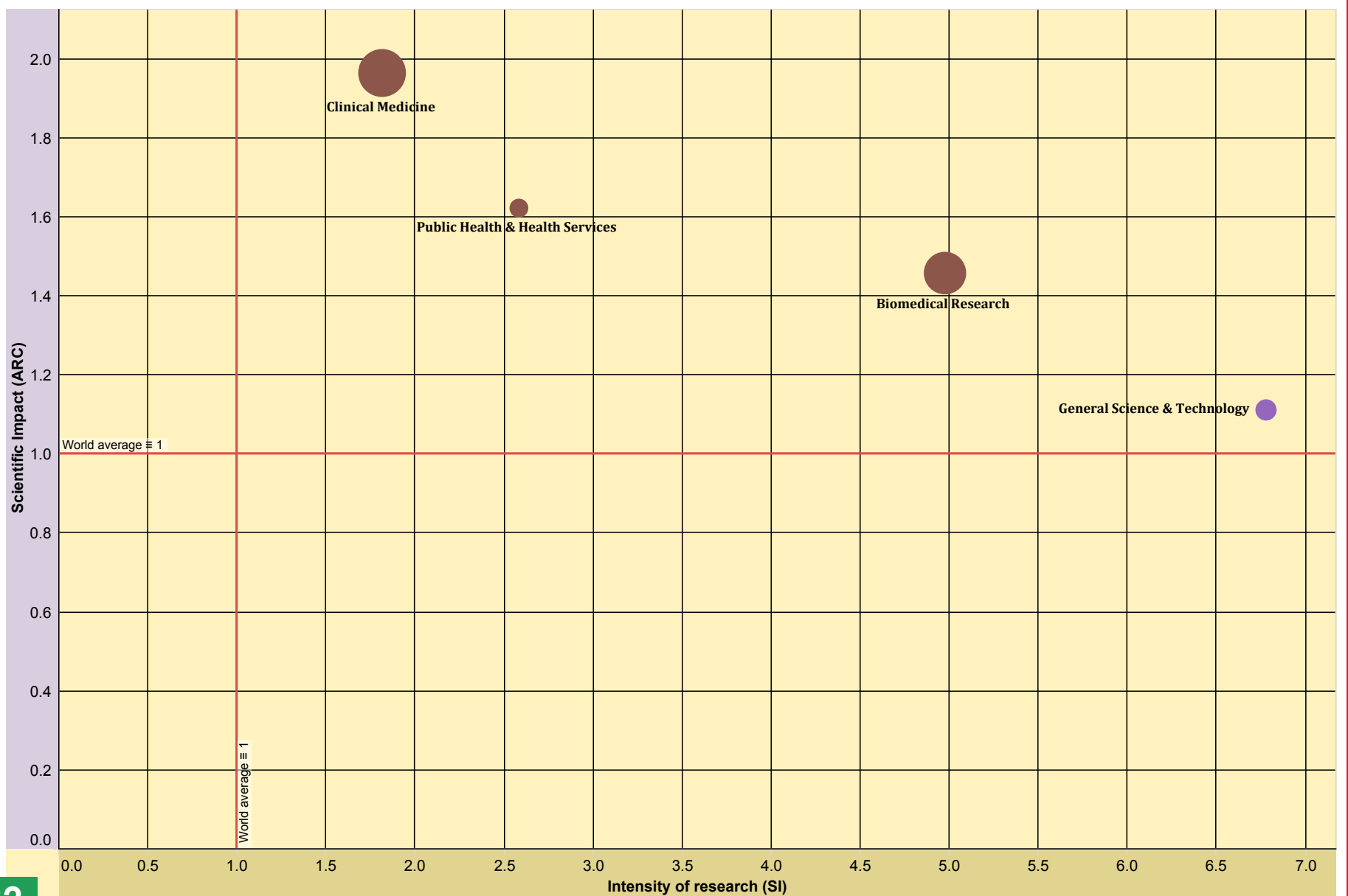
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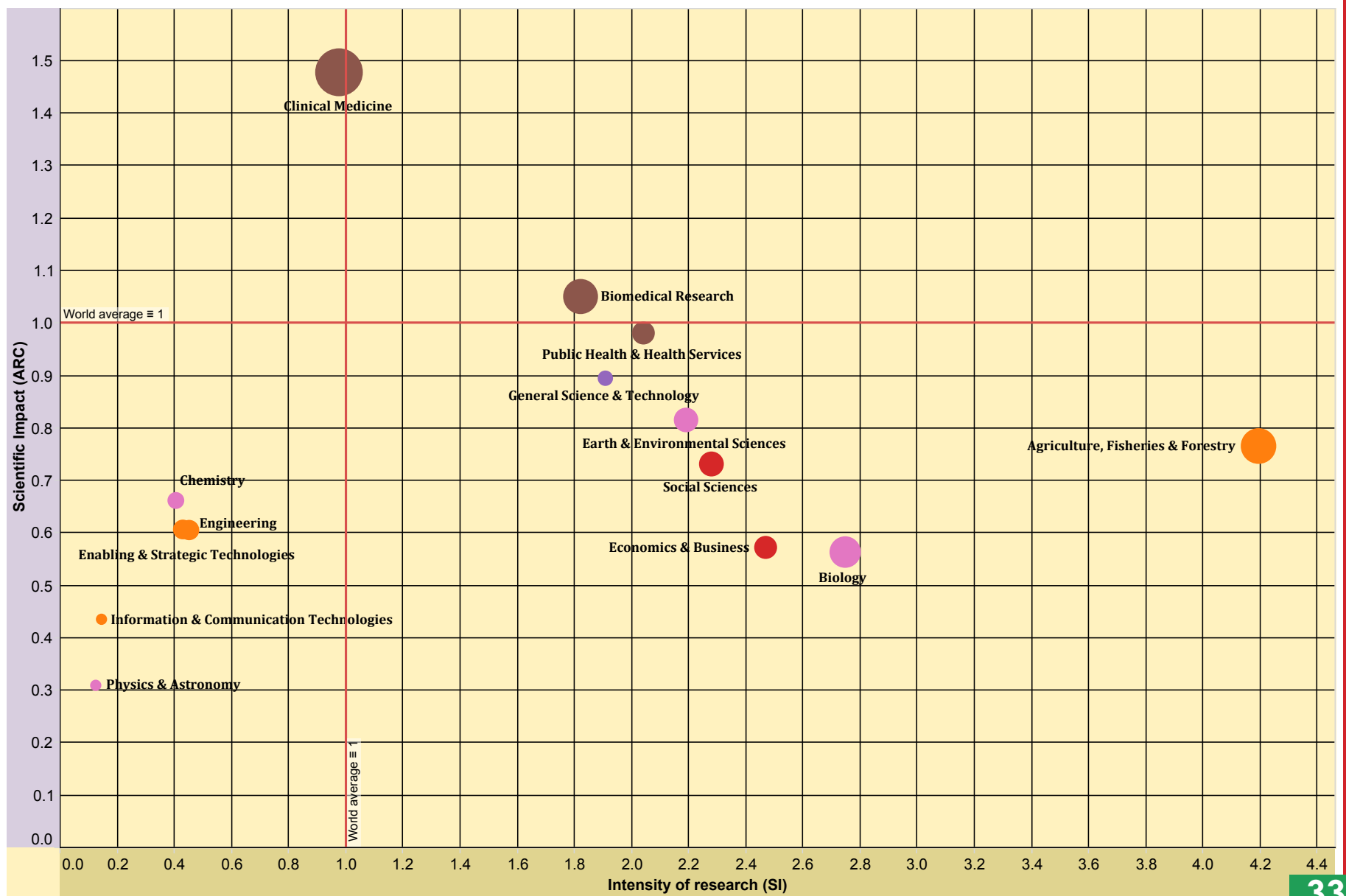
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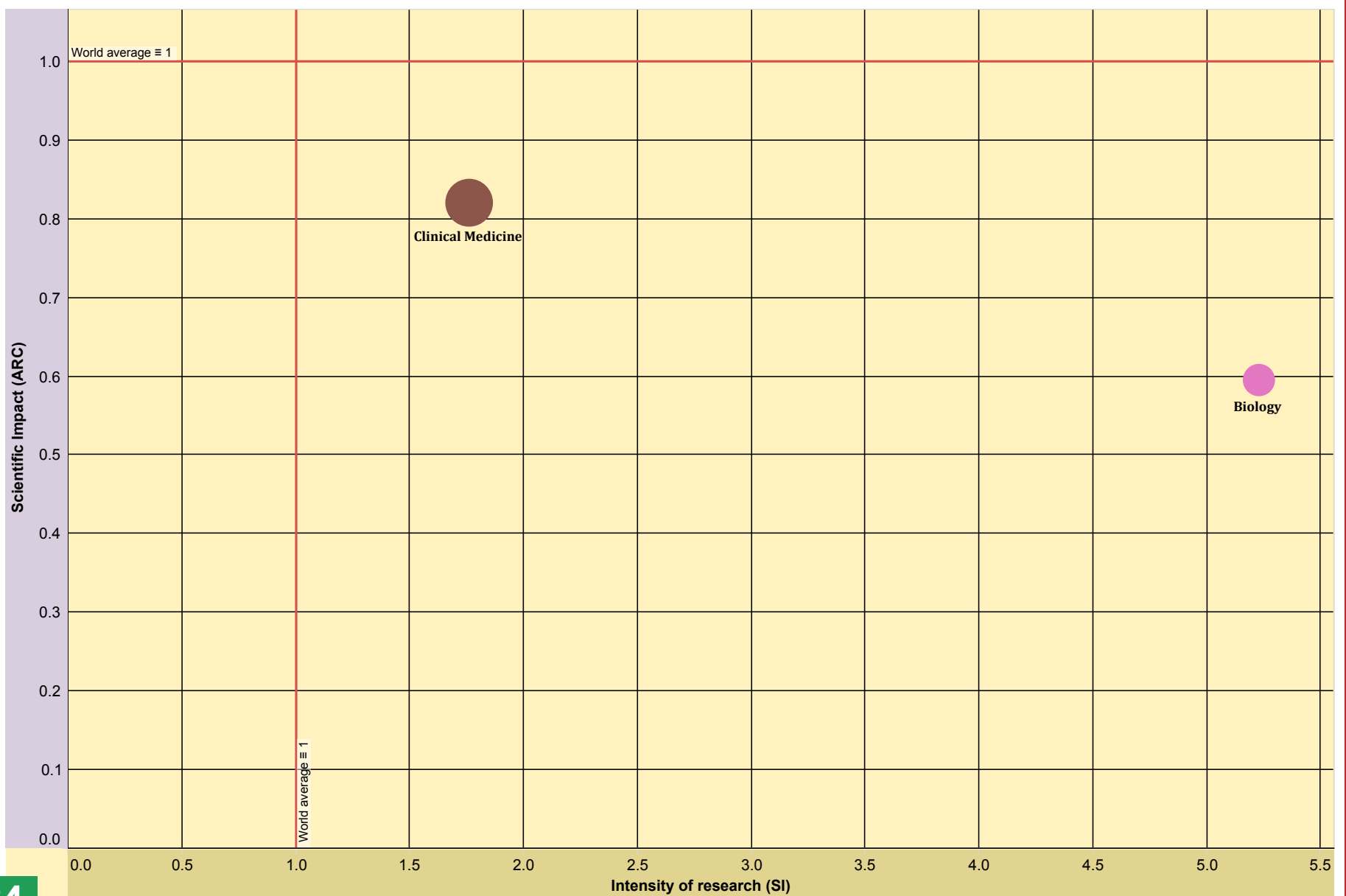
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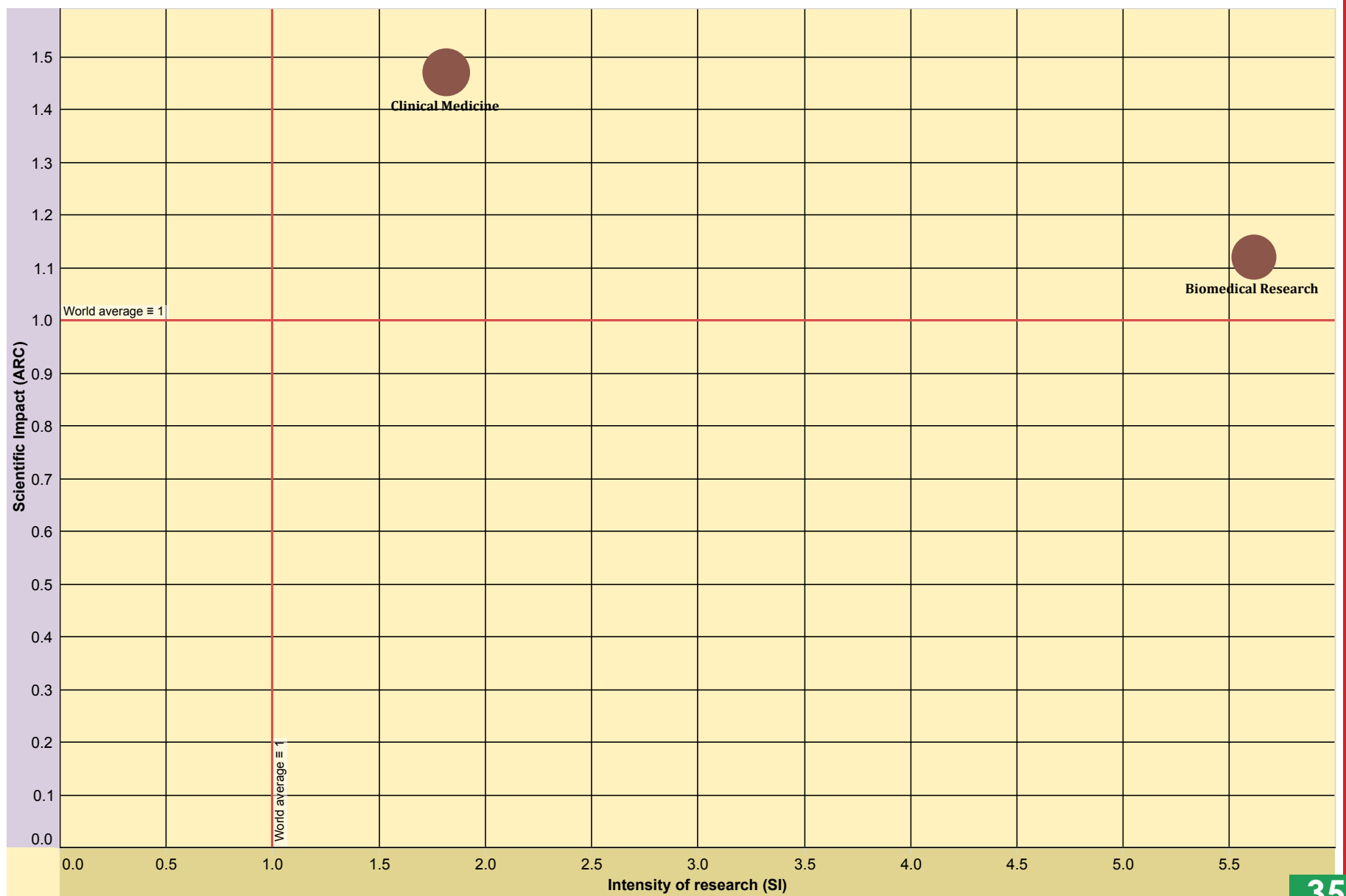
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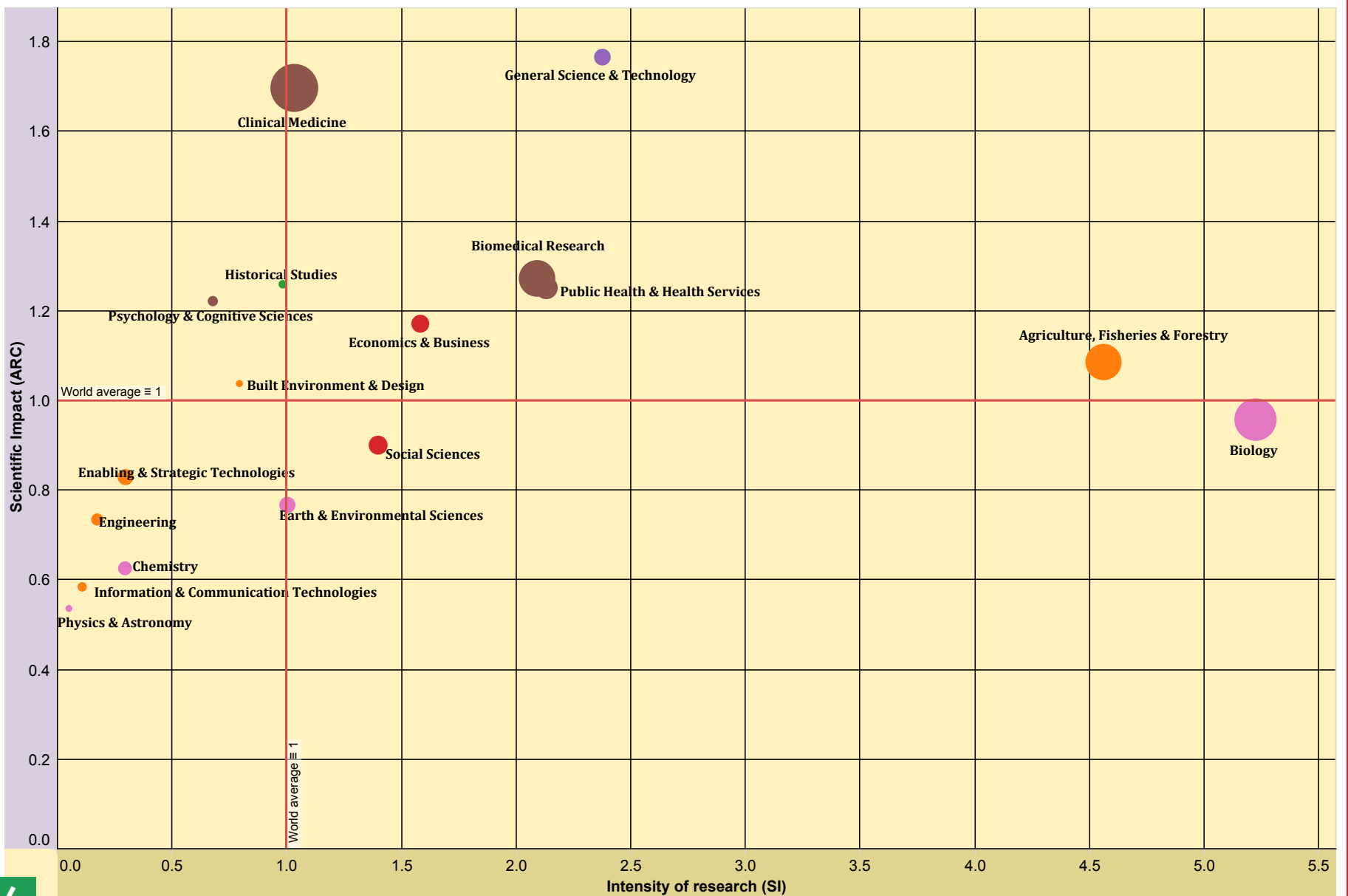
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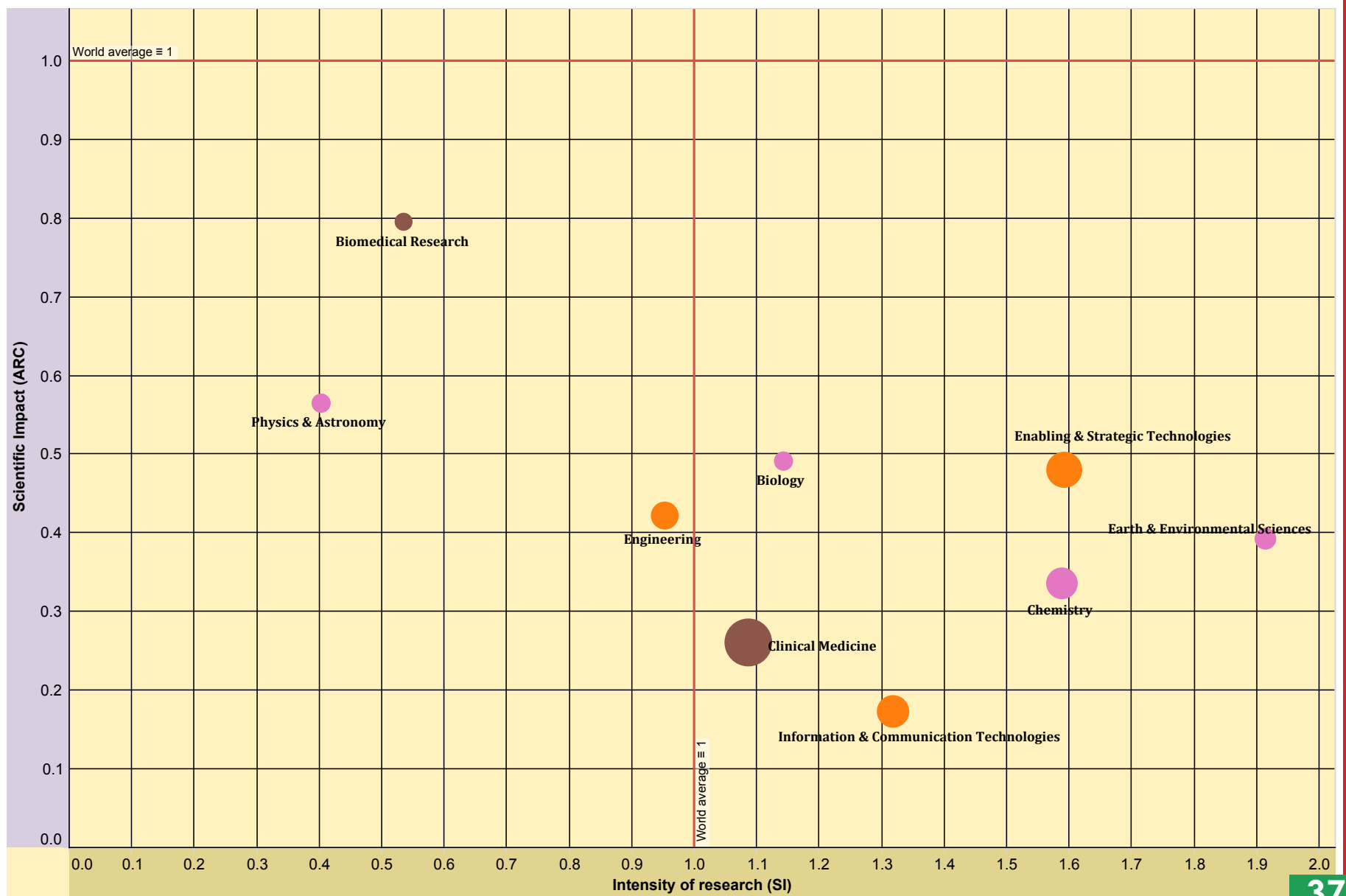
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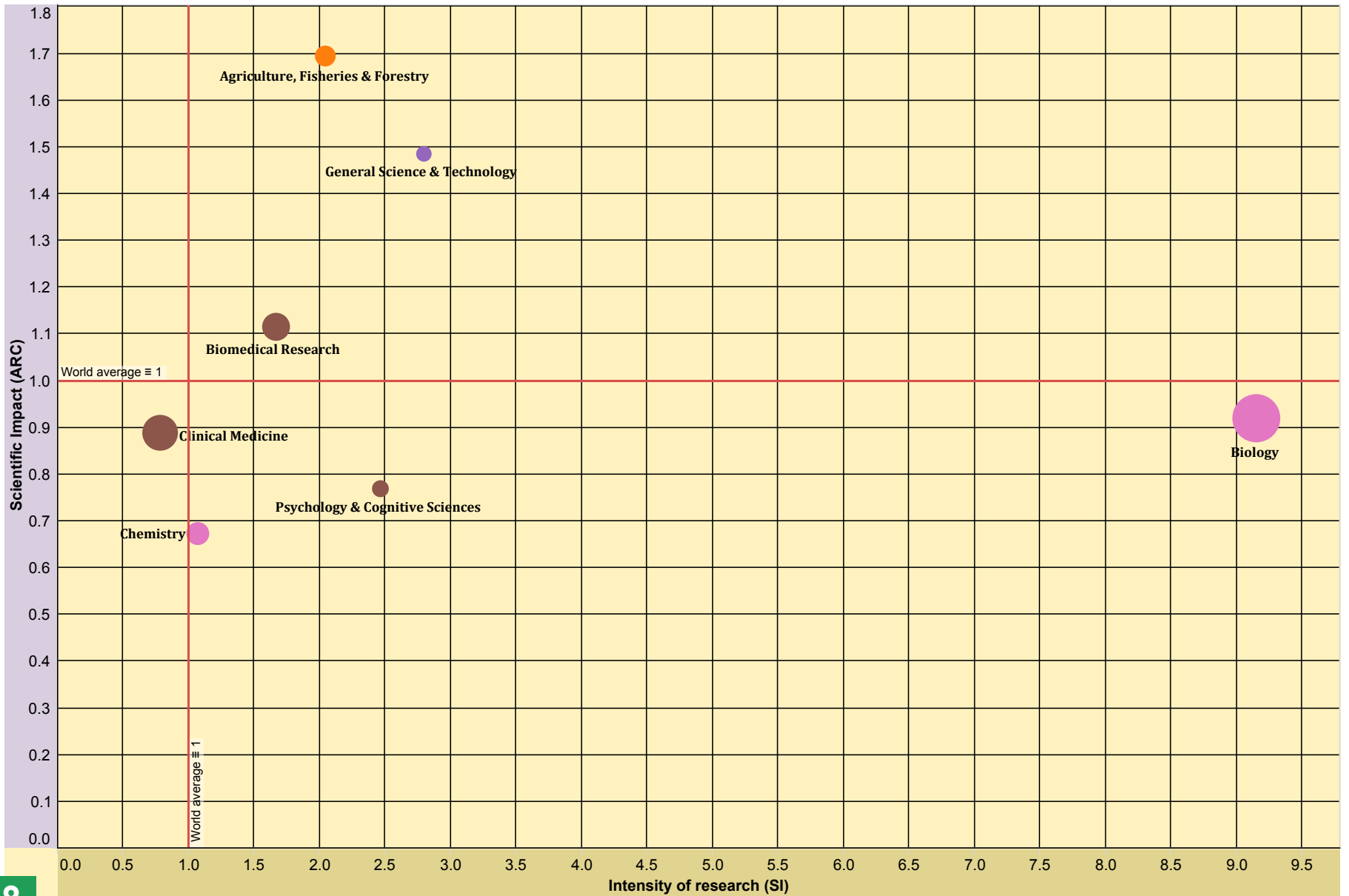
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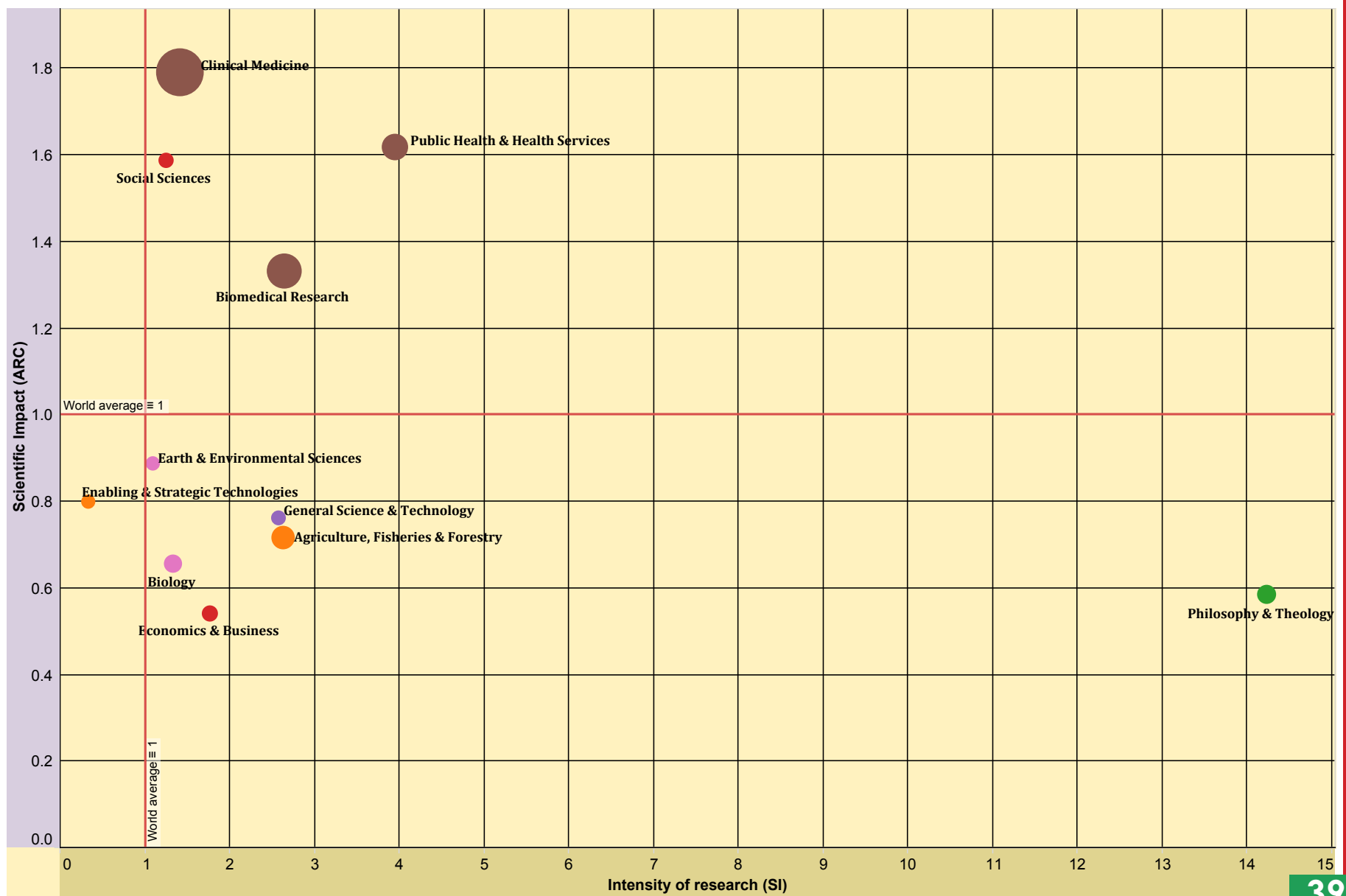
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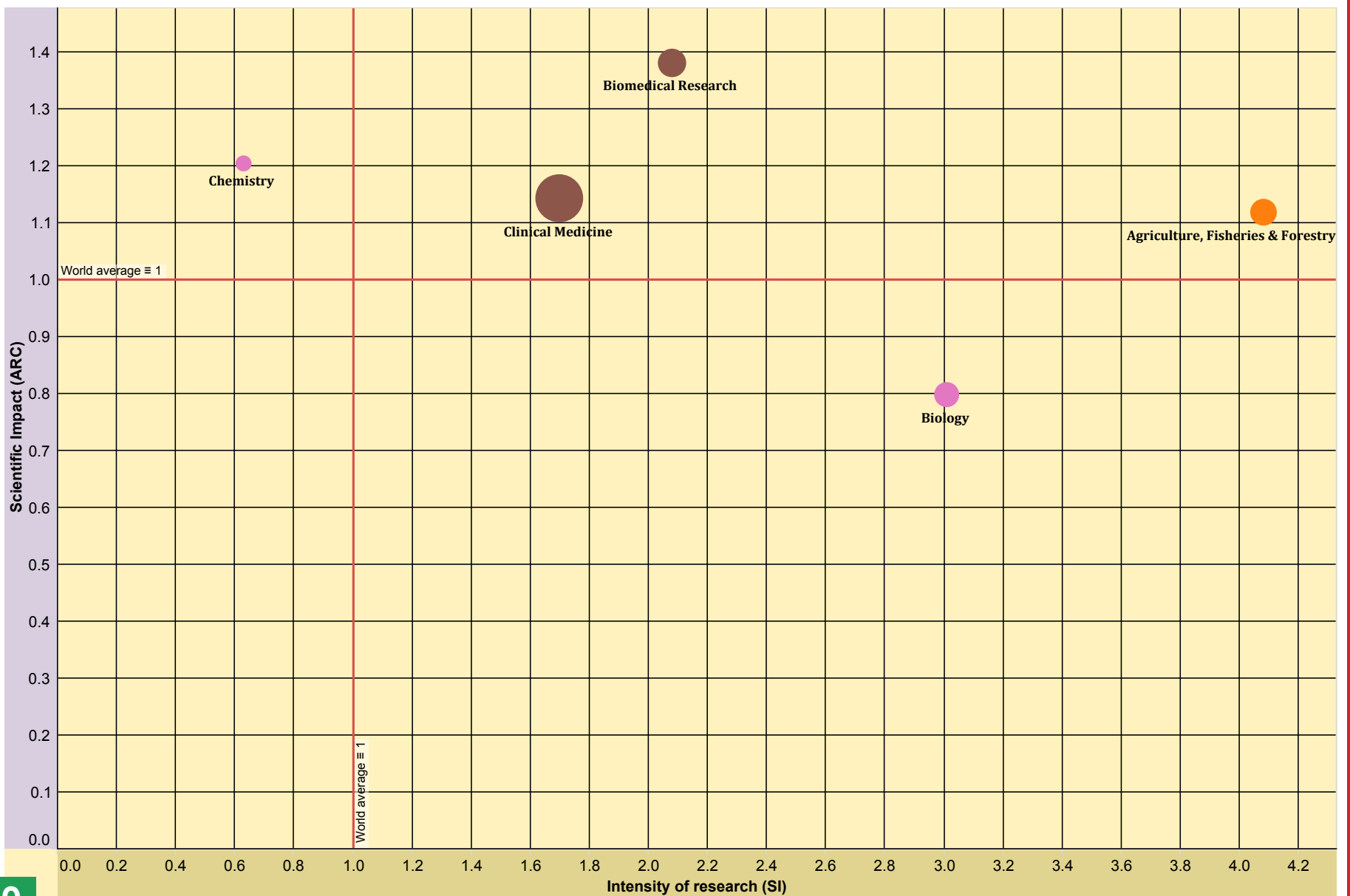
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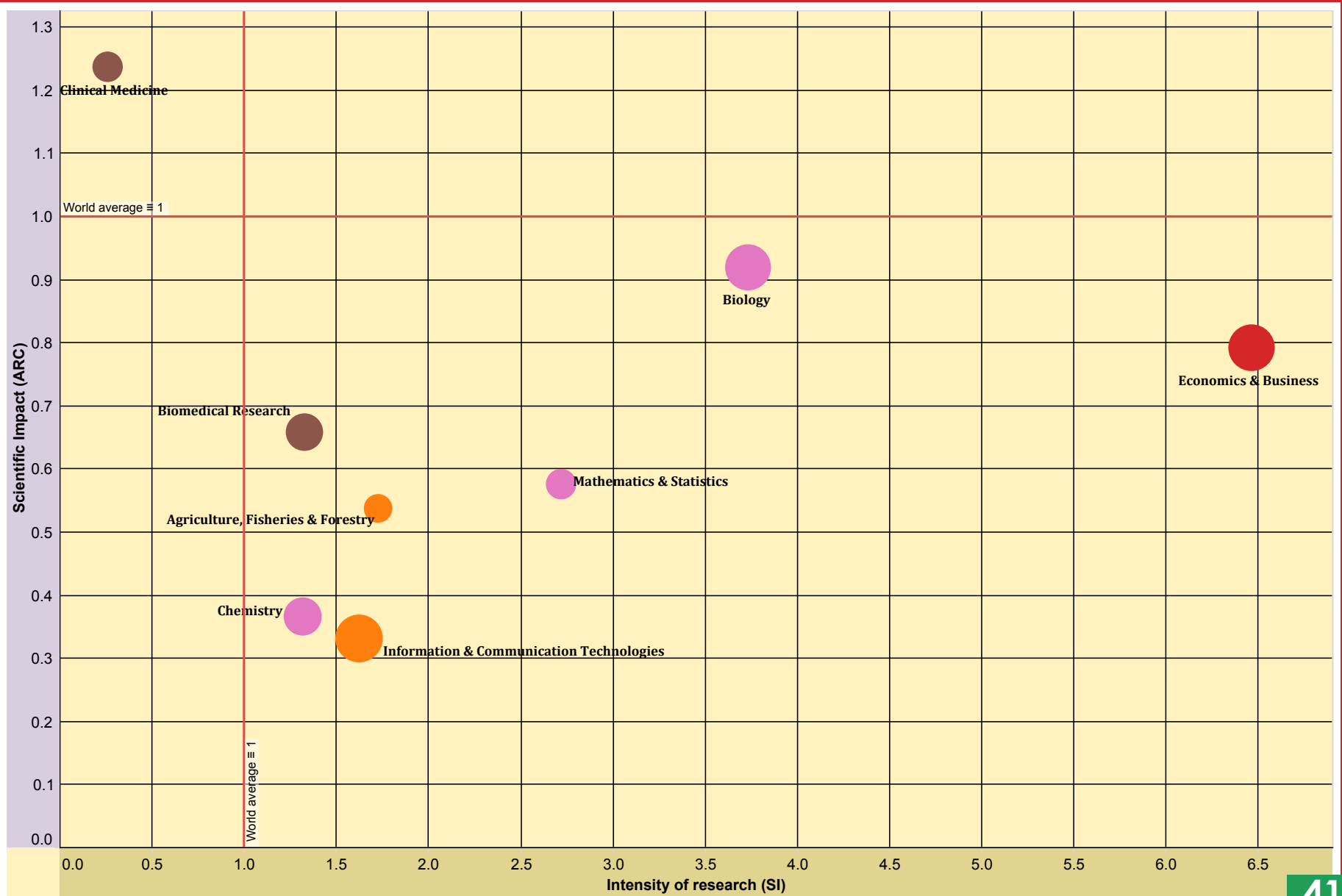
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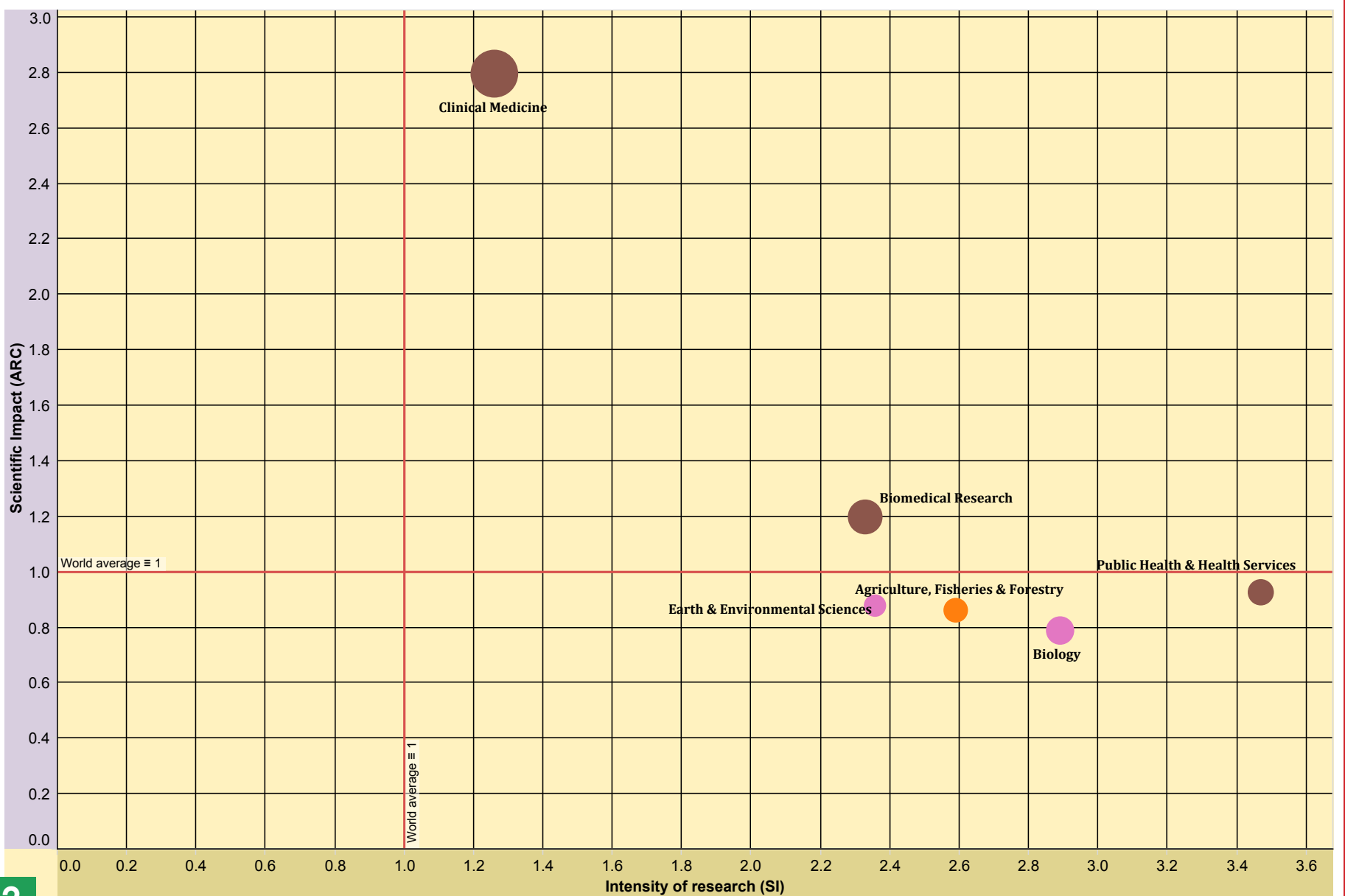
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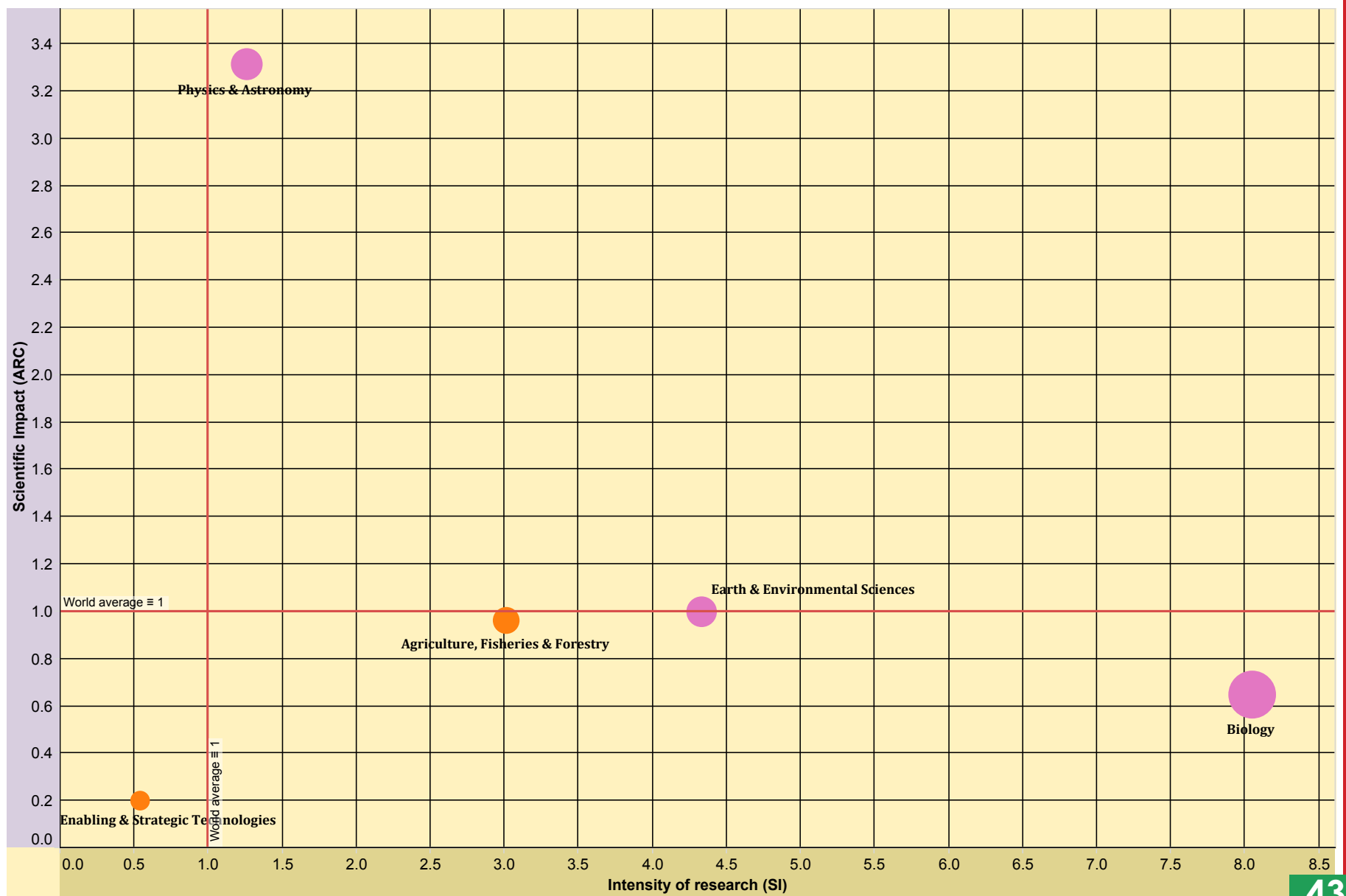
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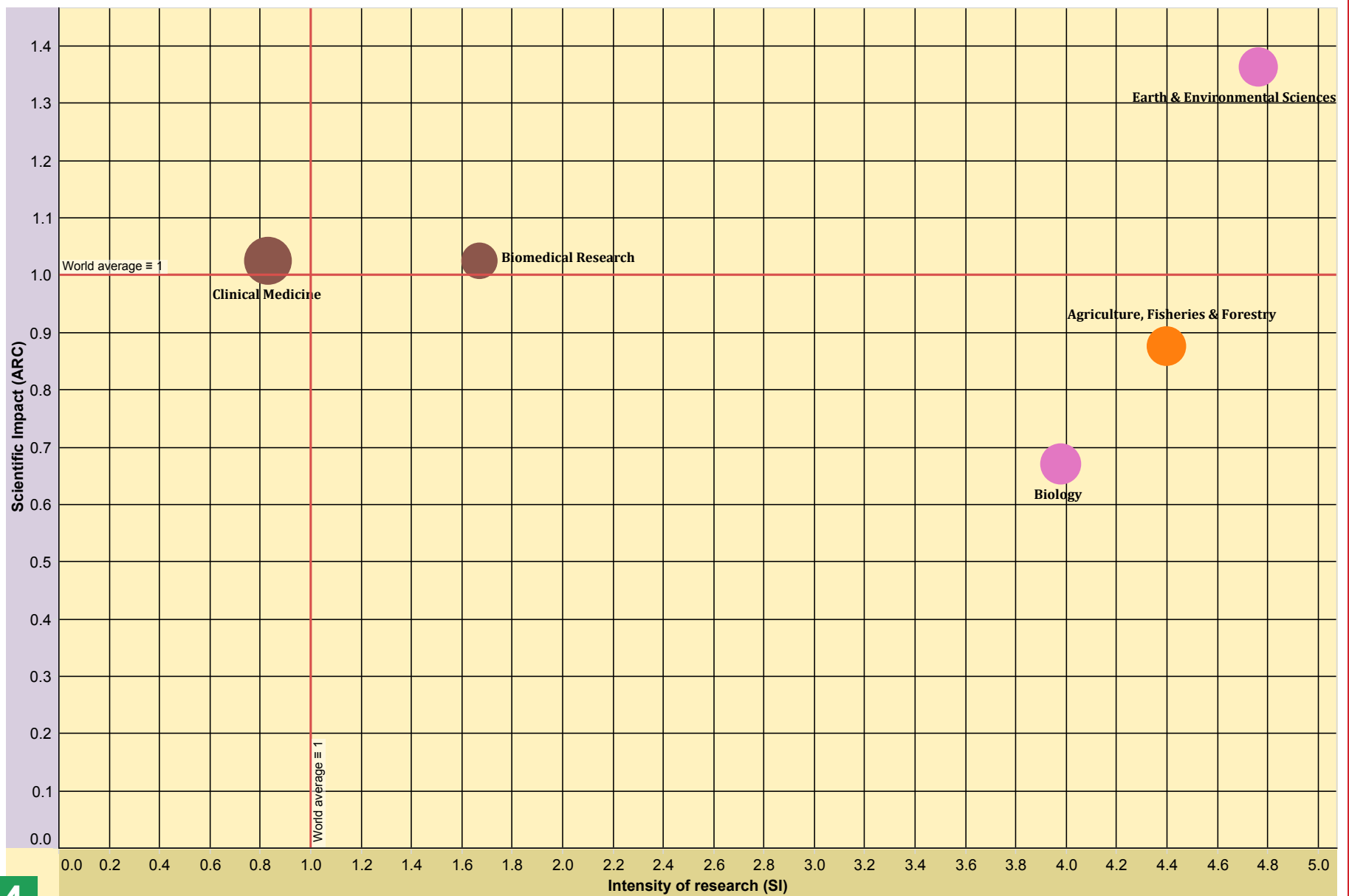
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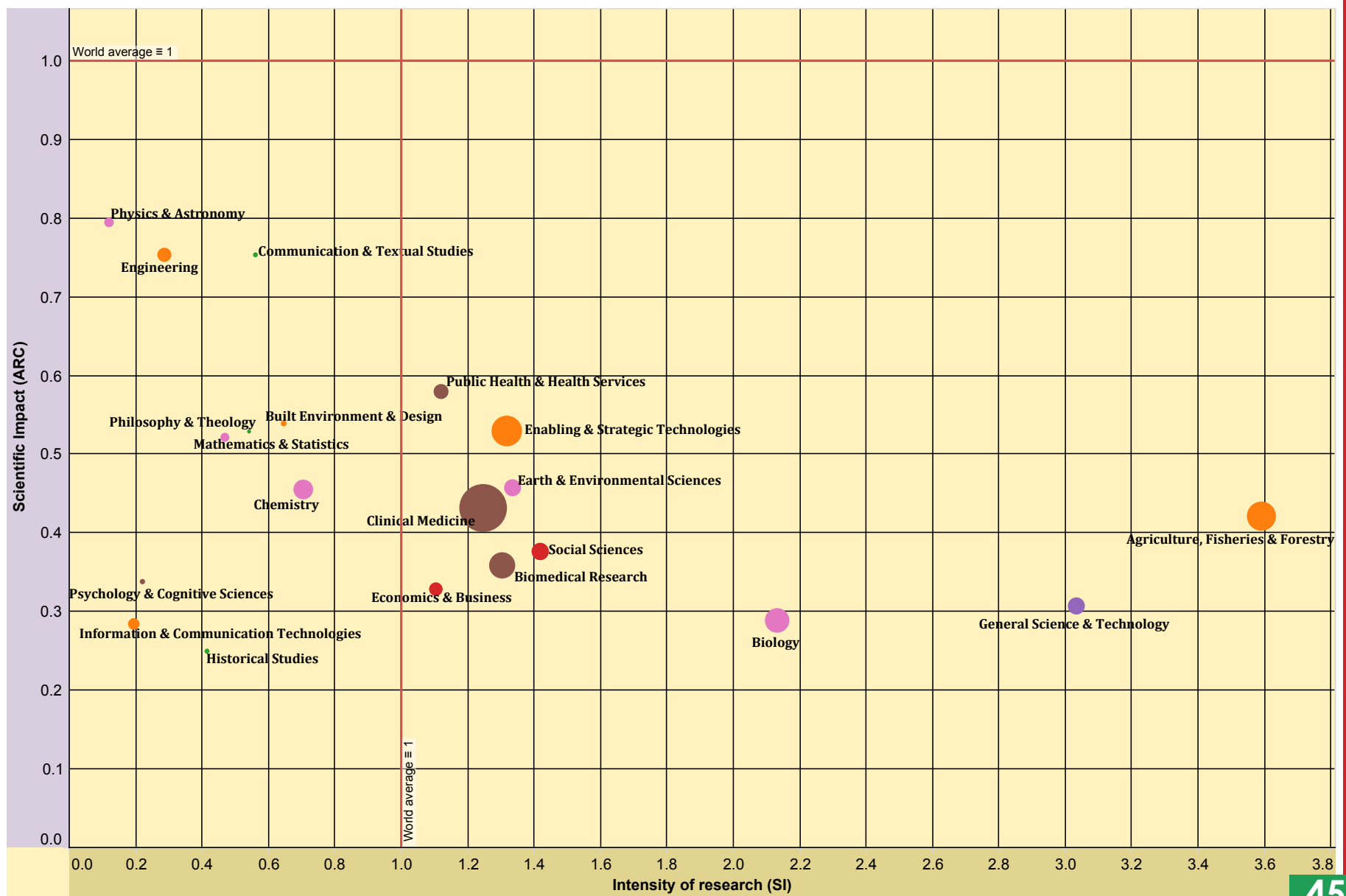
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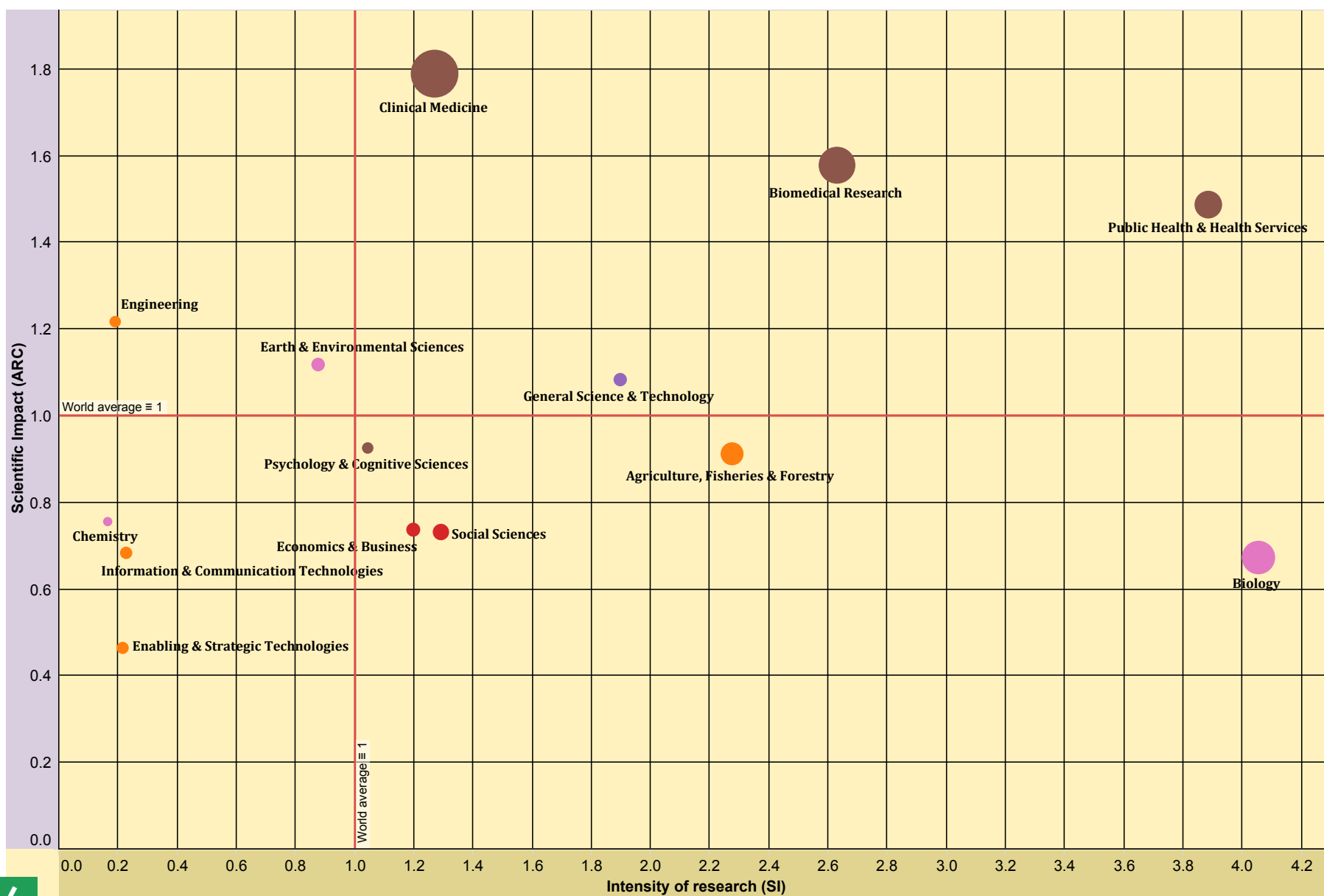
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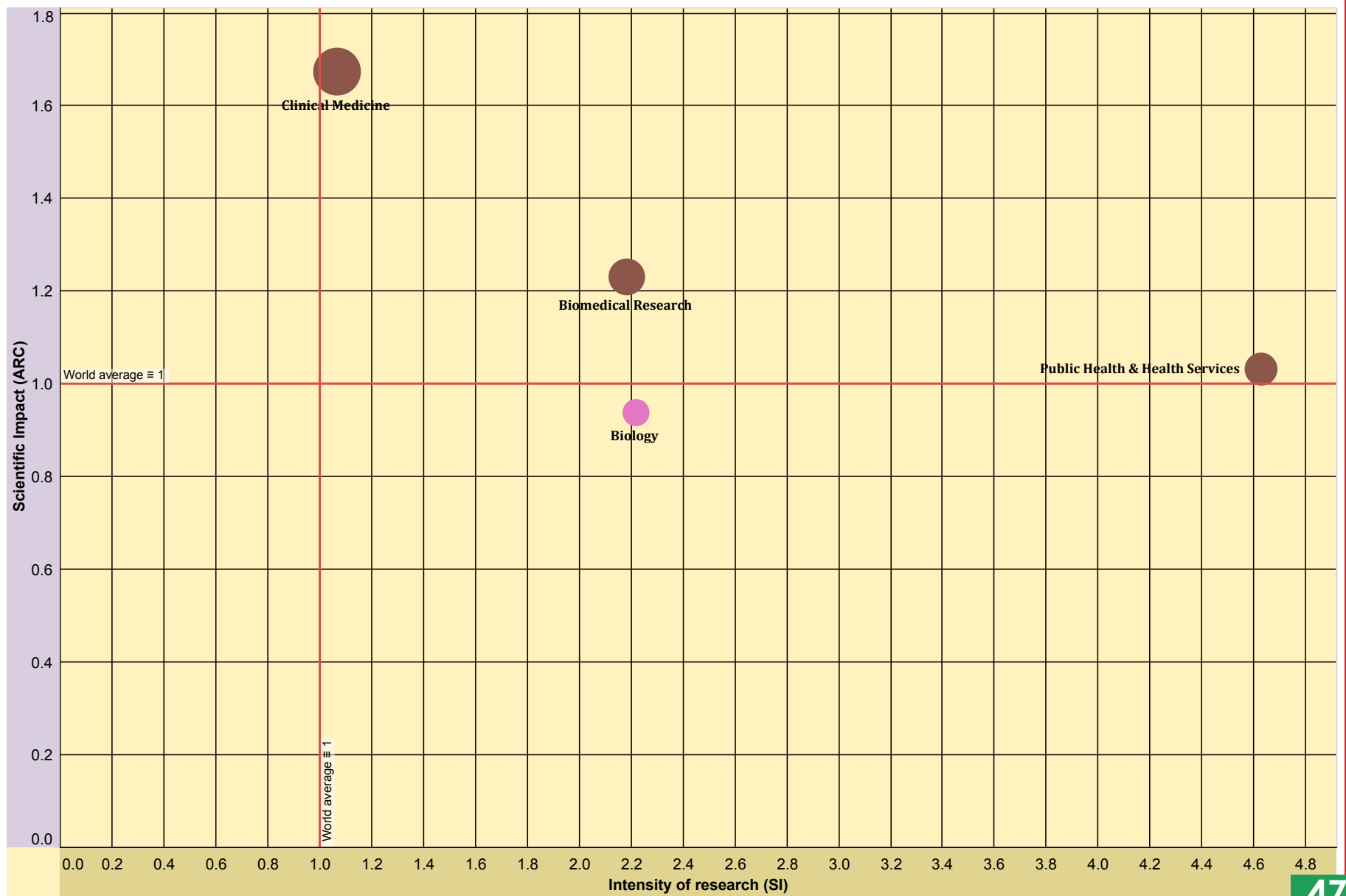
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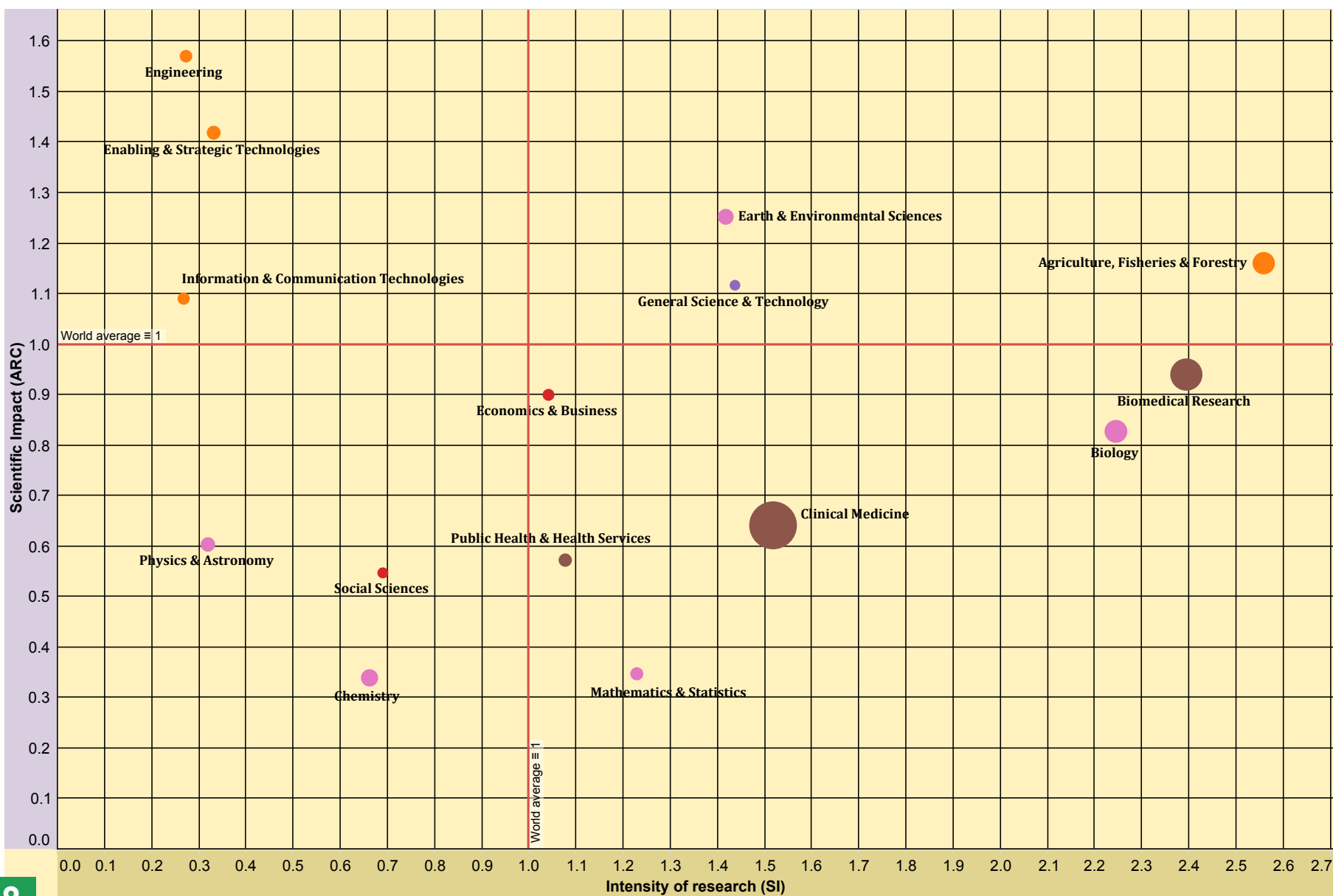
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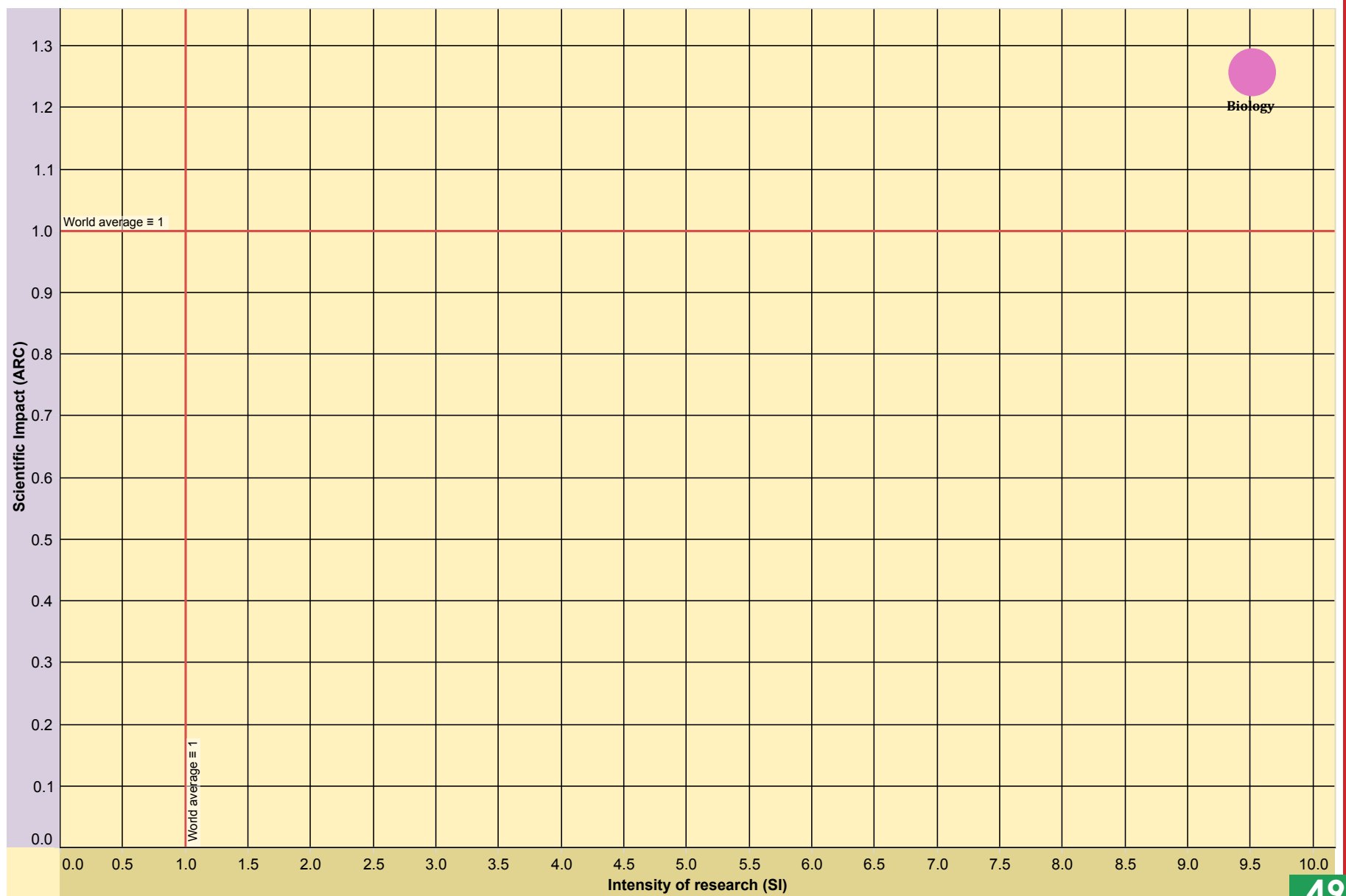
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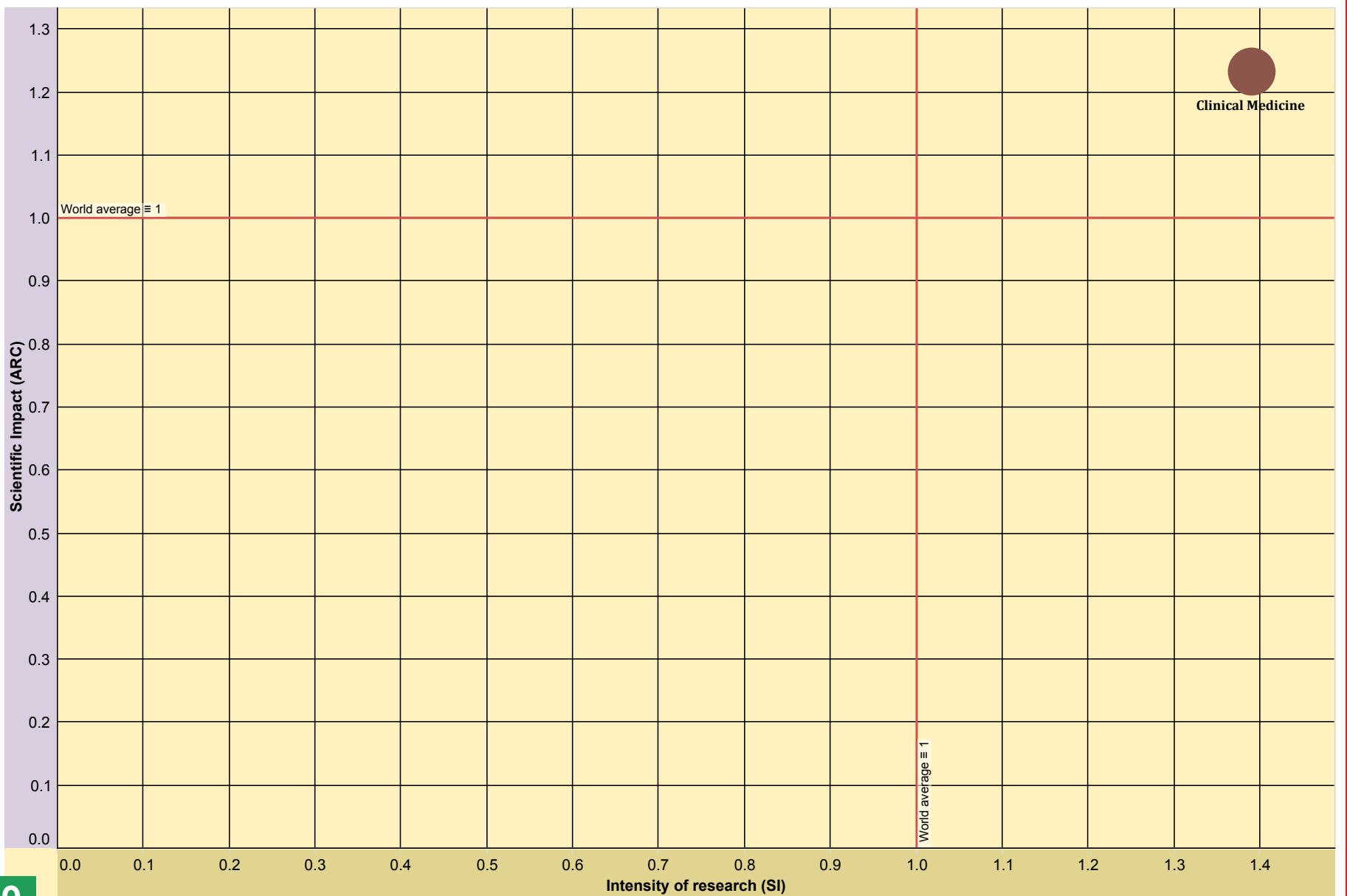
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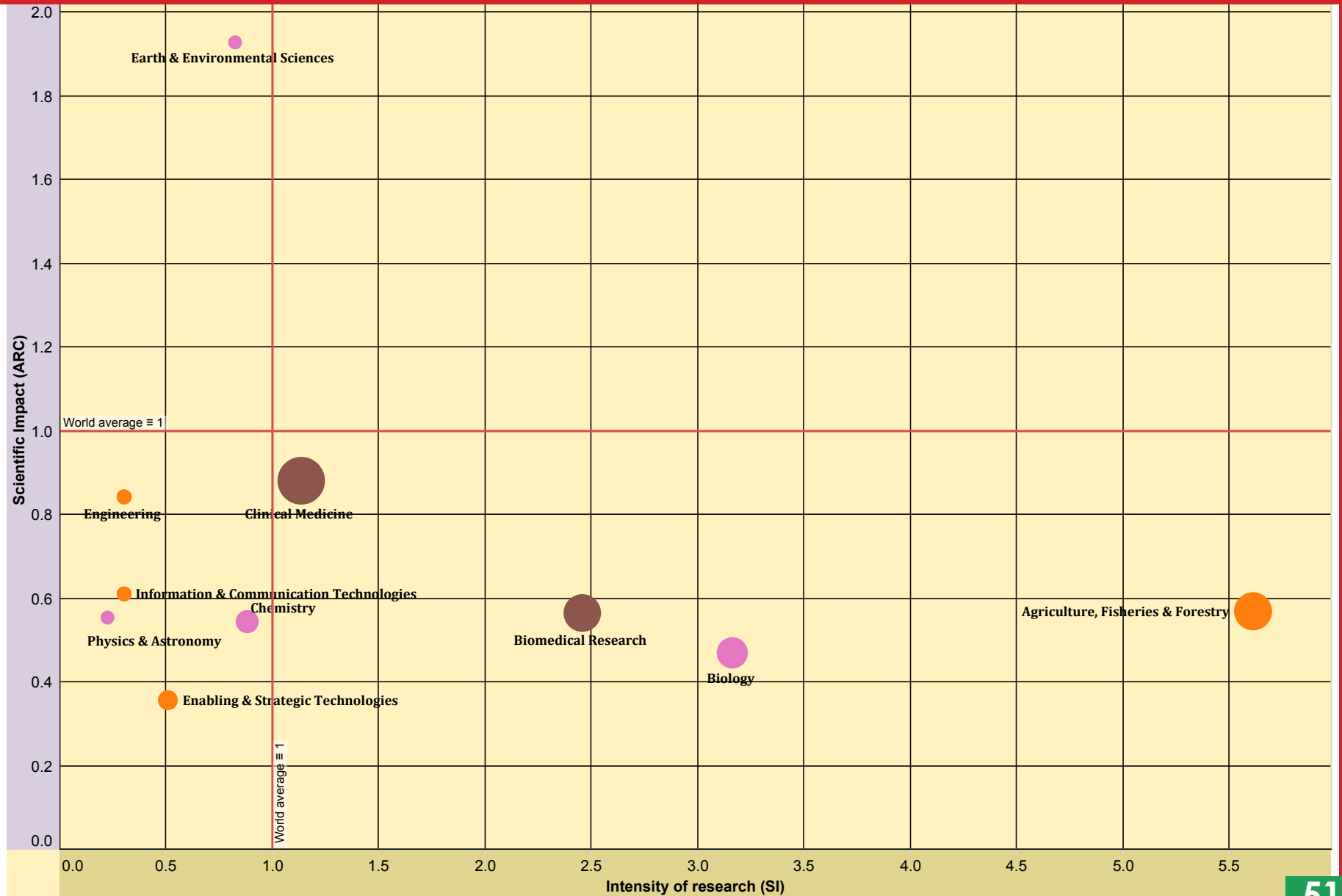
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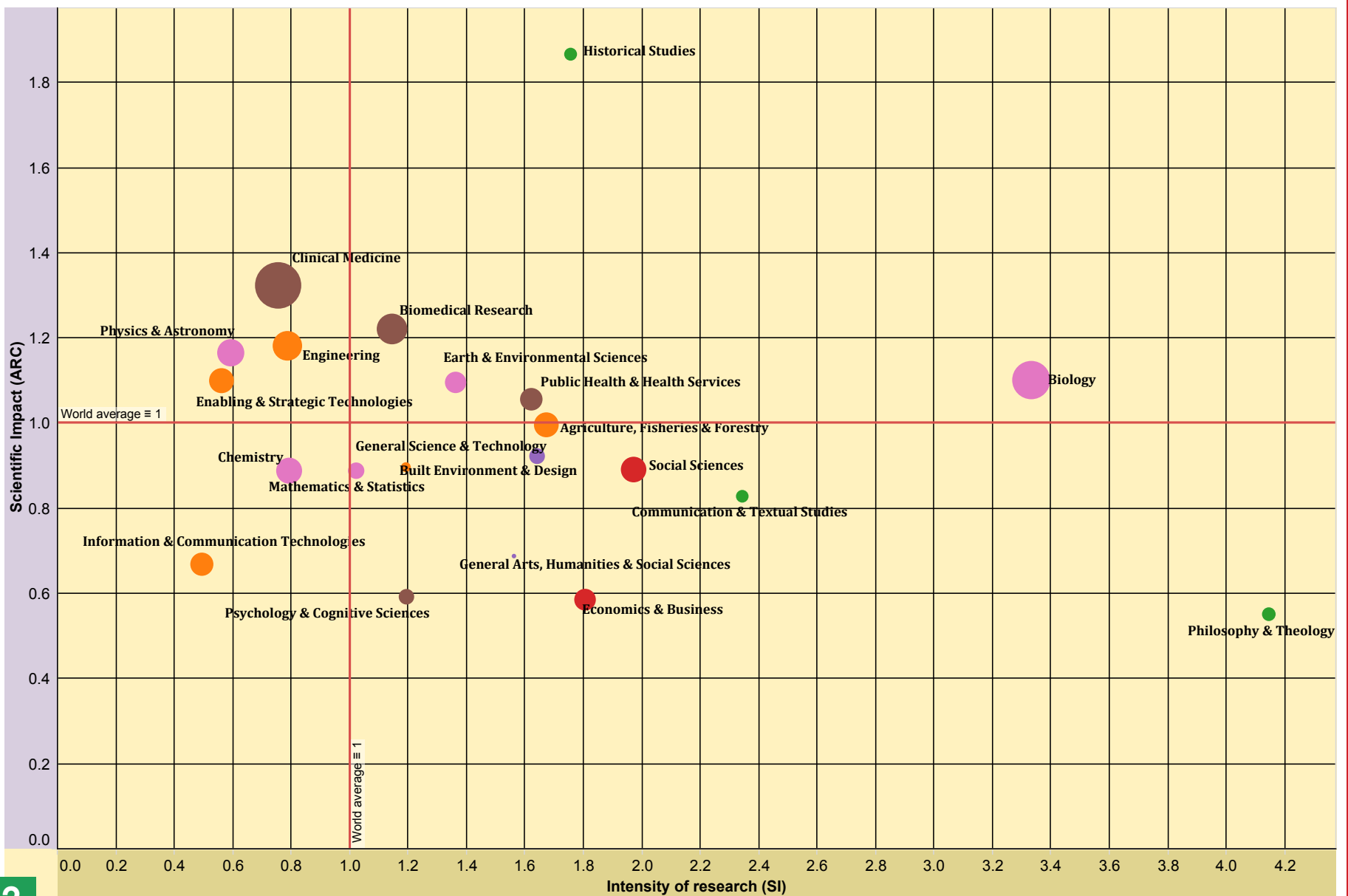
Sierra Leone



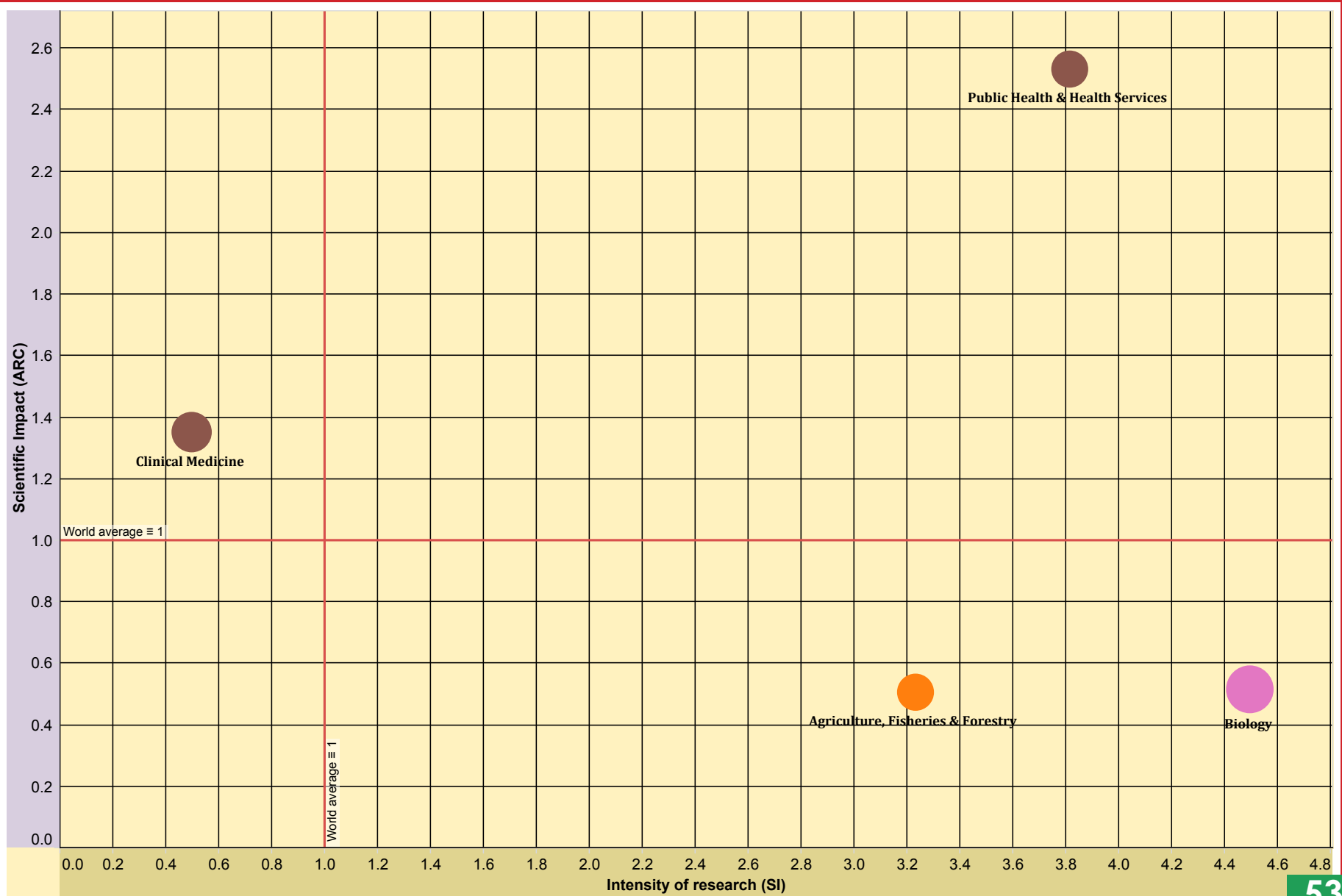
Sudan



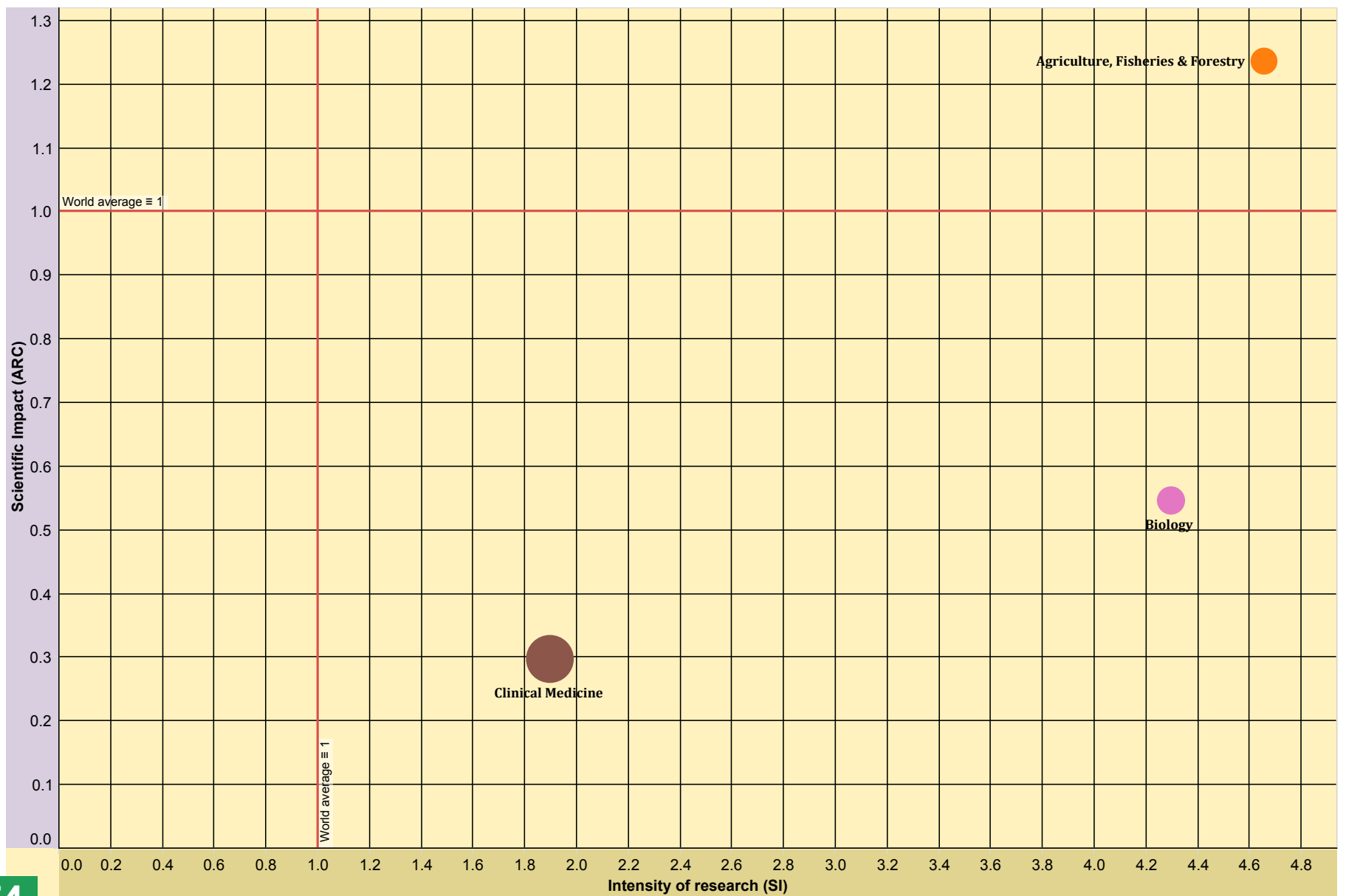
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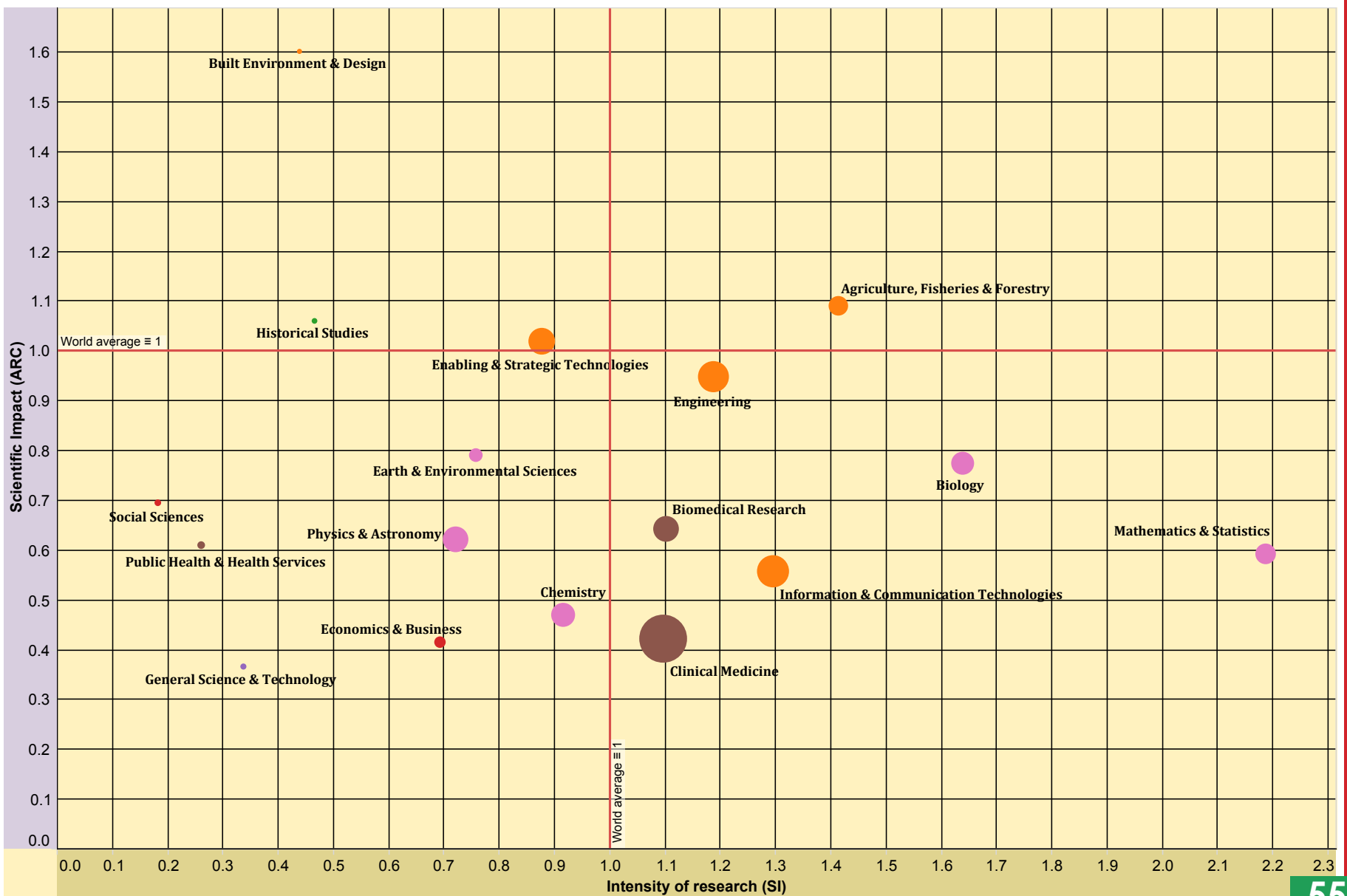
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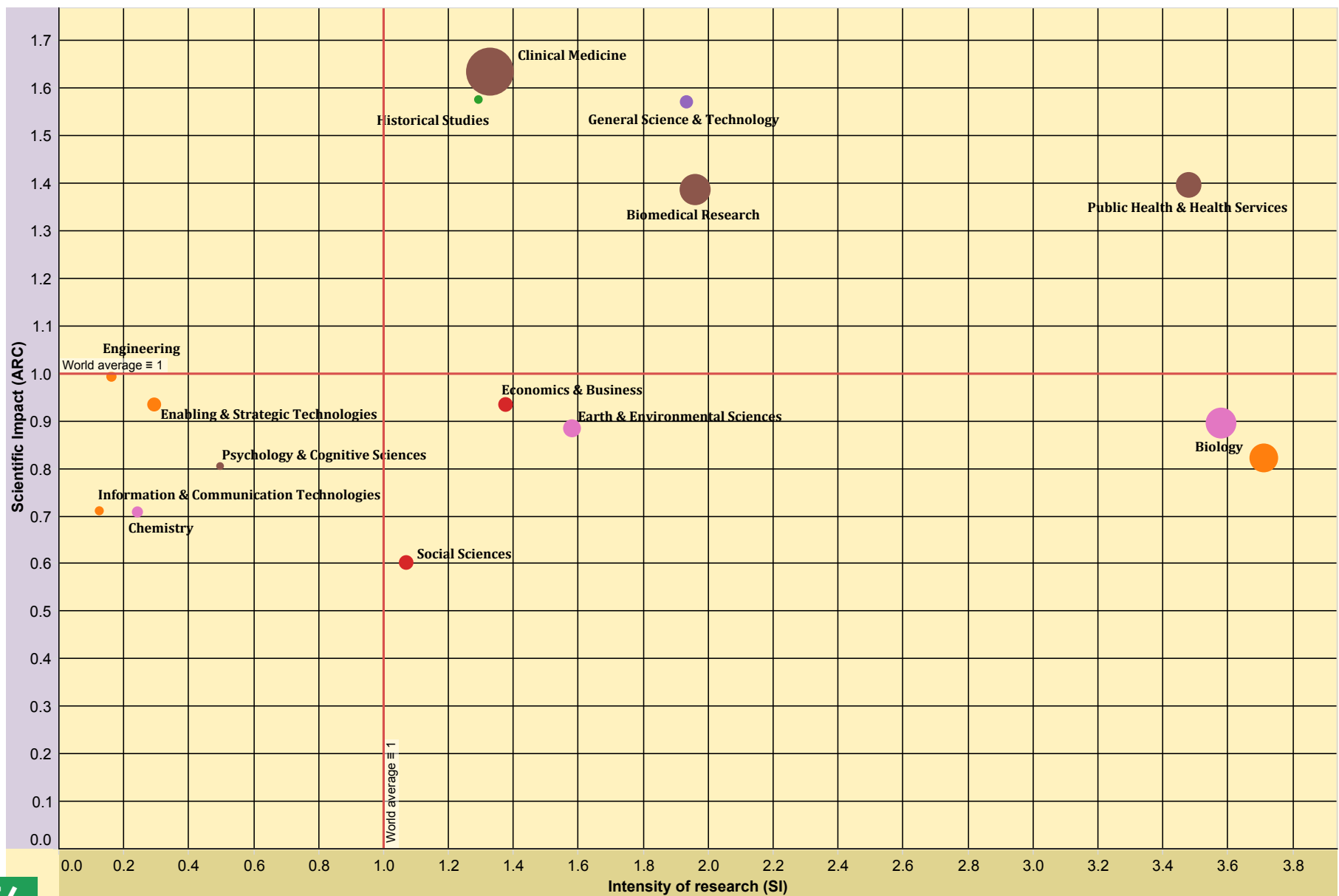
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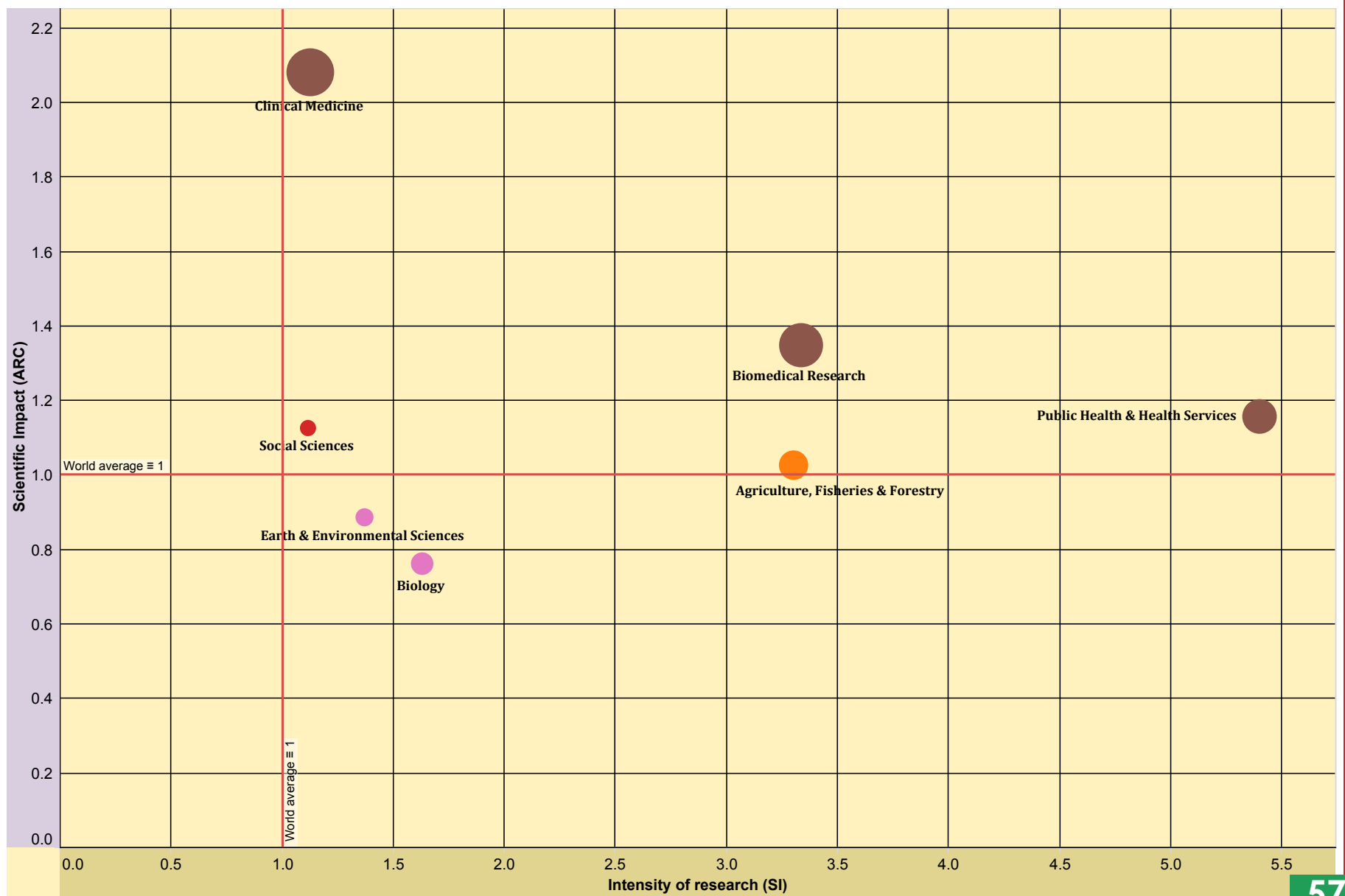
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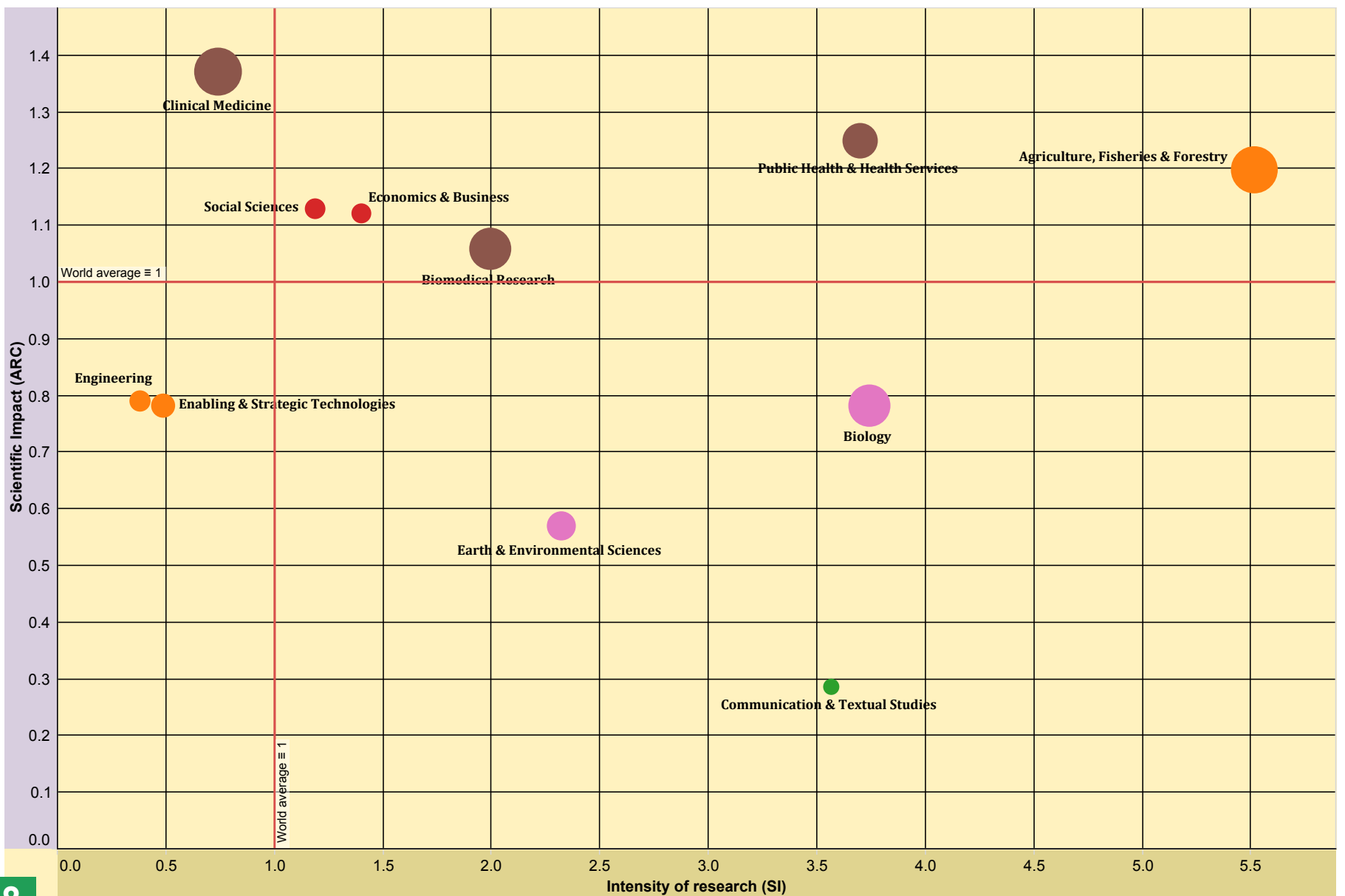
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Zimbabwe







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