

A short overview of a developed state of things

I. My background

II. Data-bases vs Knowledge-bases in a nutshell

III. Current work-flow for Mycoplasma:

1. Schematically

2. Sequentially

3. Visually

IV. Q & A



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word «phystech» is also used in Russian to refer to
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PhysTech System:



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PhysTech System:
Specialization in Scientific Research Institutes



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2016, Mar: contract with **CRG**





cellular phenotype



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Cellular phenotype is the conglomerate of multiple **cellular** processes involving gene and protein expression that result in the elaboration of a **cell's** particular morphology and function. May 5, 2009

[Transcriptome transfer produces a predictable cellular phenotype](#)

www.pnas.org/content/106/18/7624.full

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[Cellular Phenotype Database - European Bioinformatics Institute](#)

www.ebi.ac.uk/fg/sym ▼

The **Cellular Phenotype** database provides easy access to phenotypic data derived from high-throughput screening, facilitating data sharing and integration.

[Cellular Phenotype Ontology < EMBL-EBI](#)

www.ebi.ac.uk/cmpo/ ▼

The **Cellular Microscopy Phenotype** Ontology (CMPO) provides a species-neutral controlled vocabulary for describing **phenotypic** qualities relating to the whole ...

[Phenotype - Wikipedia, the free encyclopedia](#)

<https://en.wikipedia.org/wiki/Phenotype> ▼

A **phenotype** is the composite of an organism's observable characteristics or traits, such as its ... (living) organism in itself, meaning that the lowest level of biological organization compatible with the **phenotype** concept is at the **cellular** level.

[Genotype-phenotype distinction](#) · [Endophenotype](#) · [Genotype](#) · [Phenology](#)





cellular phenotype



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[Genotype-phenotype distinction](#) · [Endophenotype](#) · [Genotype](#) · [Phenology](#)



Genes to Phenotypes Heat-maps

8 genes found:

[export search results](#)

Gene	Internal ID										
		Cell death	Enhanced secretion	Grape	Intracellular retent...	Intracellular retent...	Large	Mitotic delay	Polylobed		
Screen:		M1	E1	M1	B1	B1	M1	M1	M1		
1. DHX15	• AMBN10032577	1				0.5					
	• AMBN10032589							0.6			
2. DNM1P34	• AMBN10036793	1									
	• AMBN10044542					1	0.6	0.6			
	• AMBN10044554						0.6				
3. EDDM3A	• AMBN10023464	1									
	• AMBN10023465							0.5			
4. MST4	• AMBN10001057	1						0.6			
	• AMBN10001059					0.5					
5. PRR14L	• AMBN10023595					0.5					
	• AMBN10023596	1				0.5					
	• AMBN10035846						0.5	0.5	0.5		
6. PRSS55	• AMBN10004579	1									
	• AMBN10004580					0.5	0.5				
	• AMBN10004581	0.6						0.6			
7. RAD23A	• AMBN10027133	1		1				1	1		
	• AMBN10027134	1									
8. SV2B	• AMBN10032015	1									
	• AMBN10032025							0.5			



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II. Data-bases vs Knowledge-bases in a nutshell

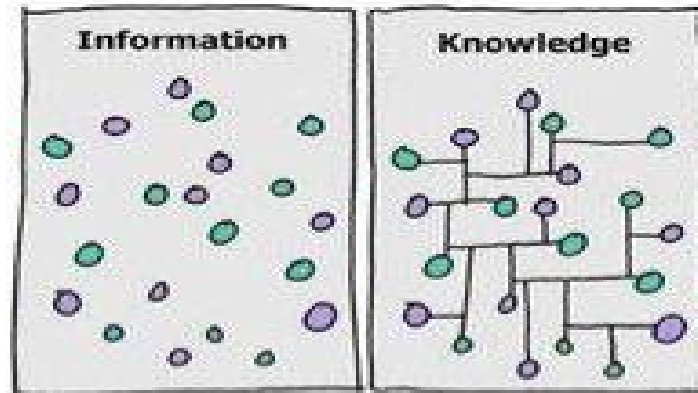
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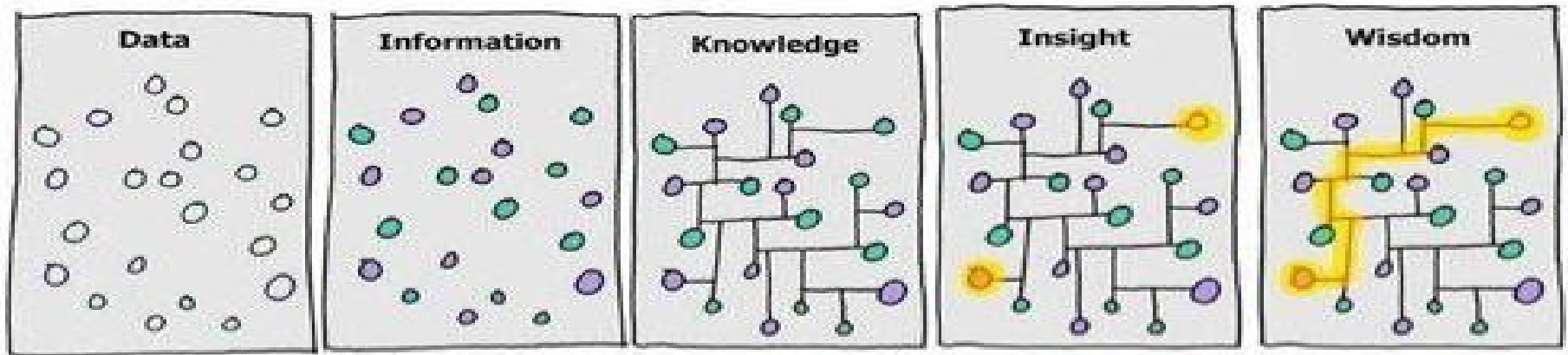
IV. Q & A



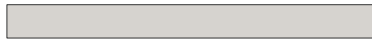
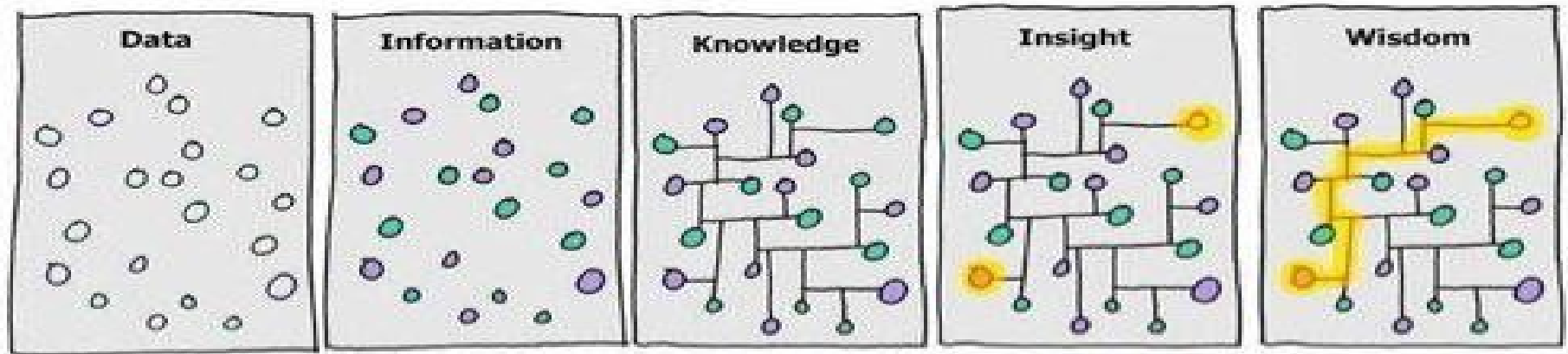
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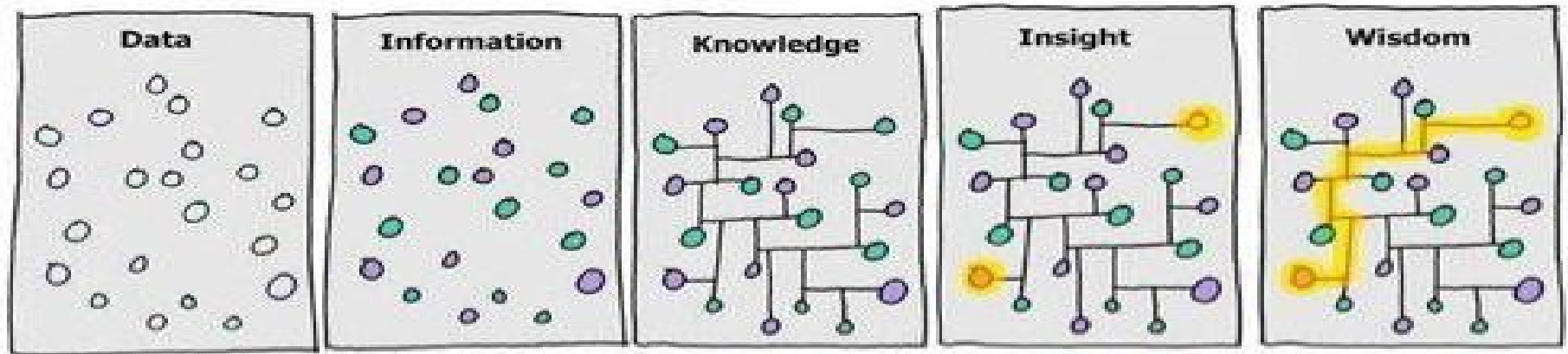
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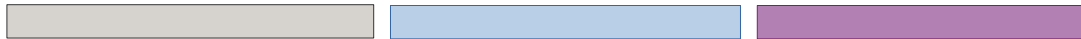
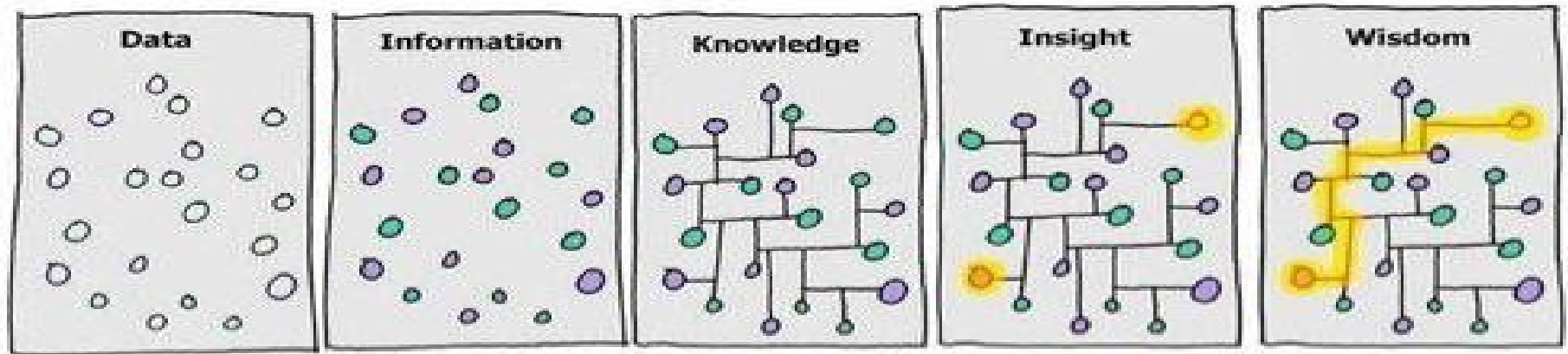
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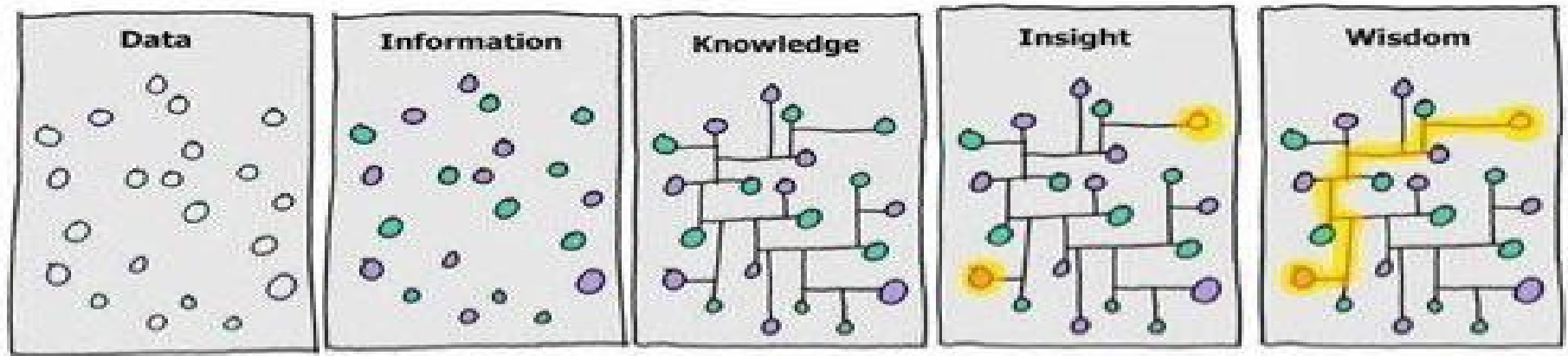
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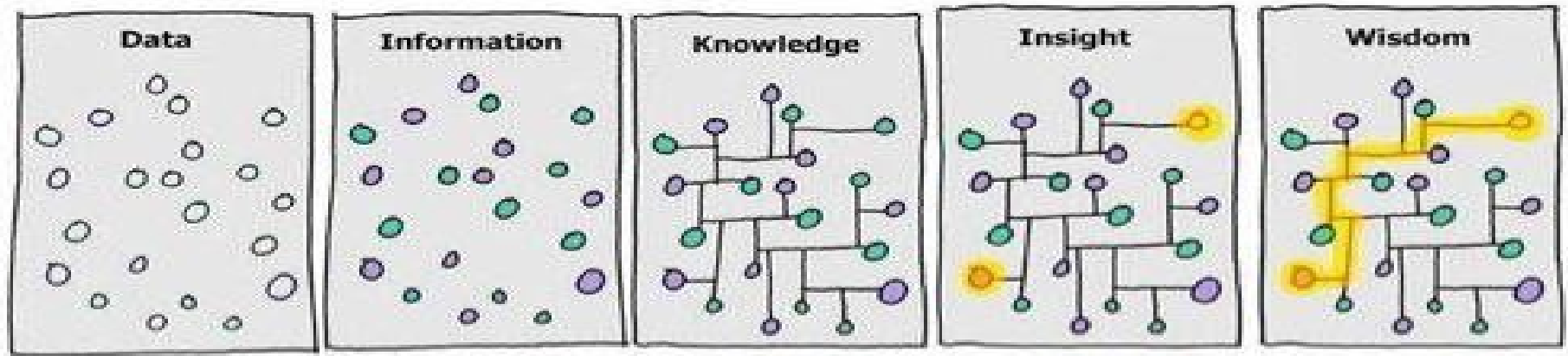
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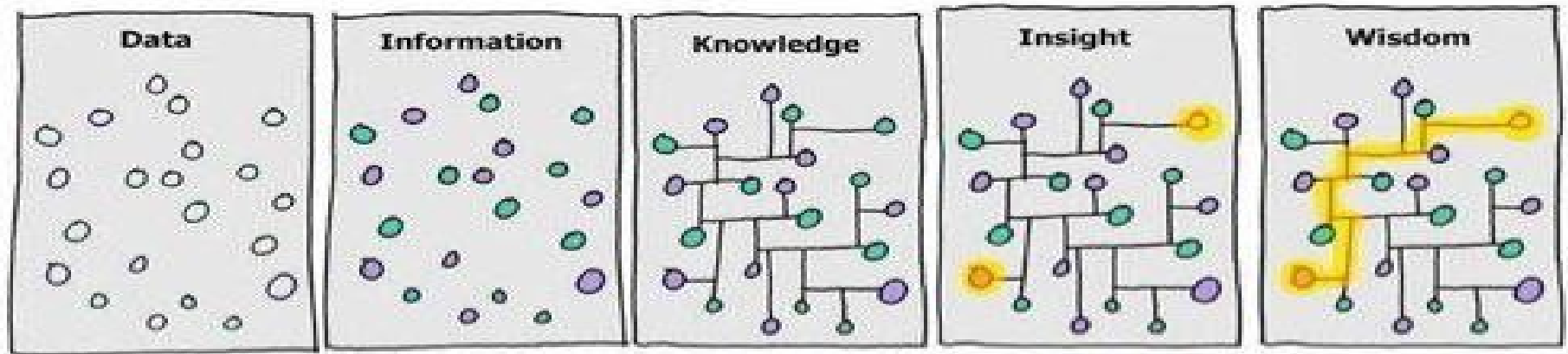
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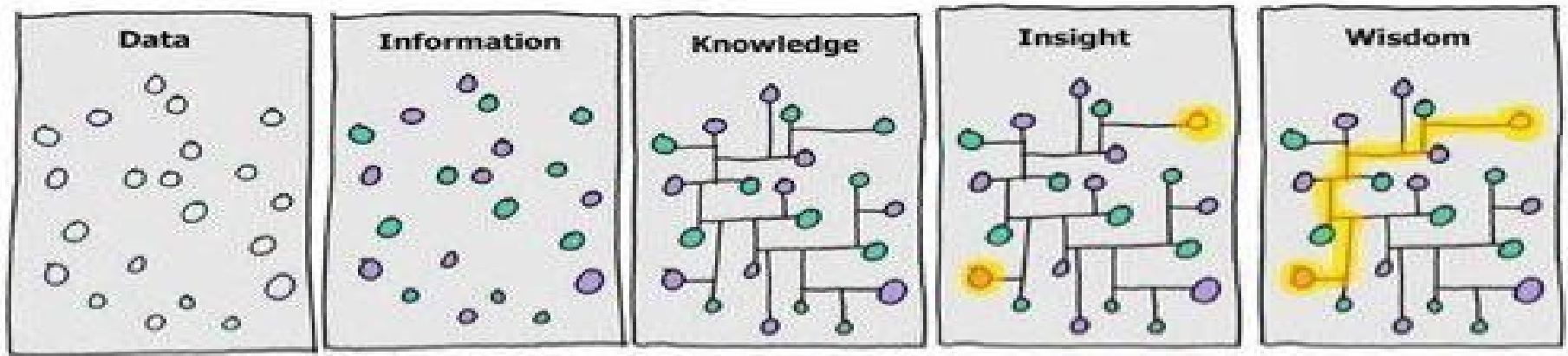
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data



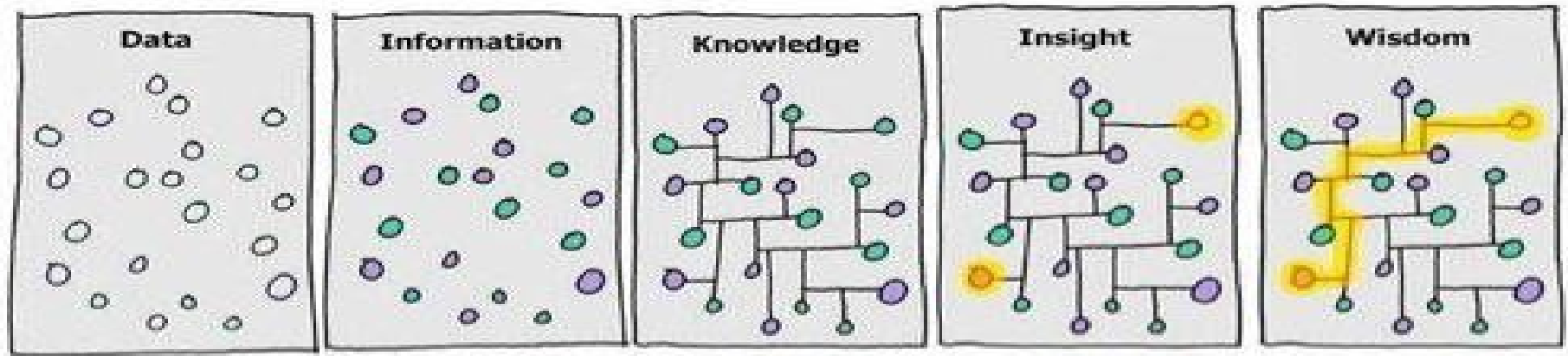
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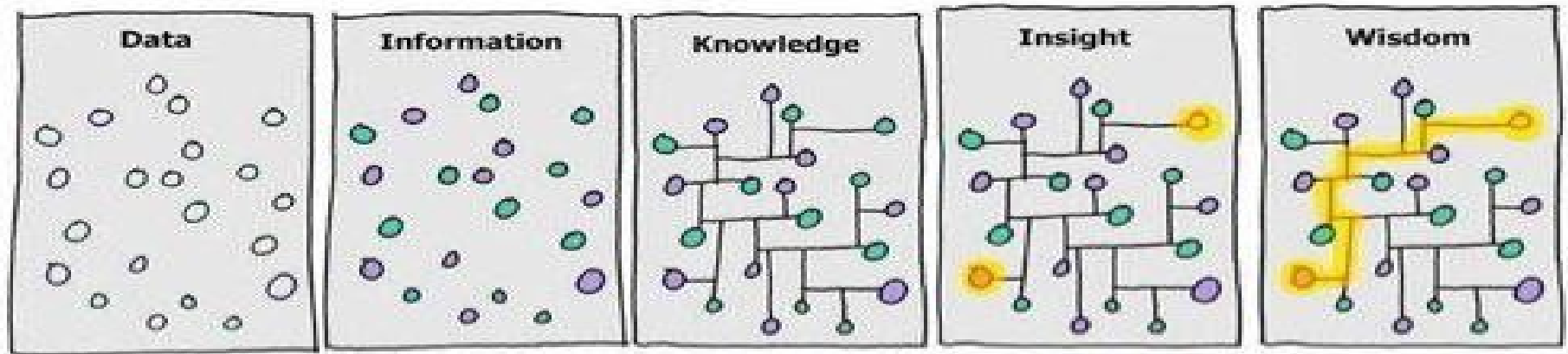
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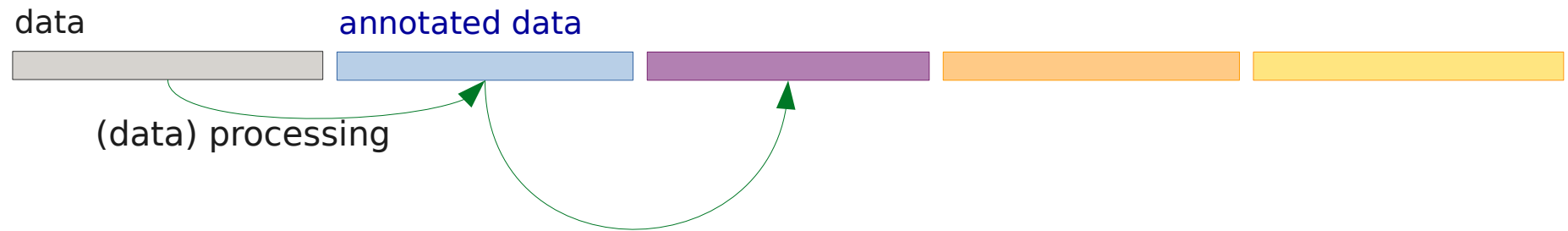
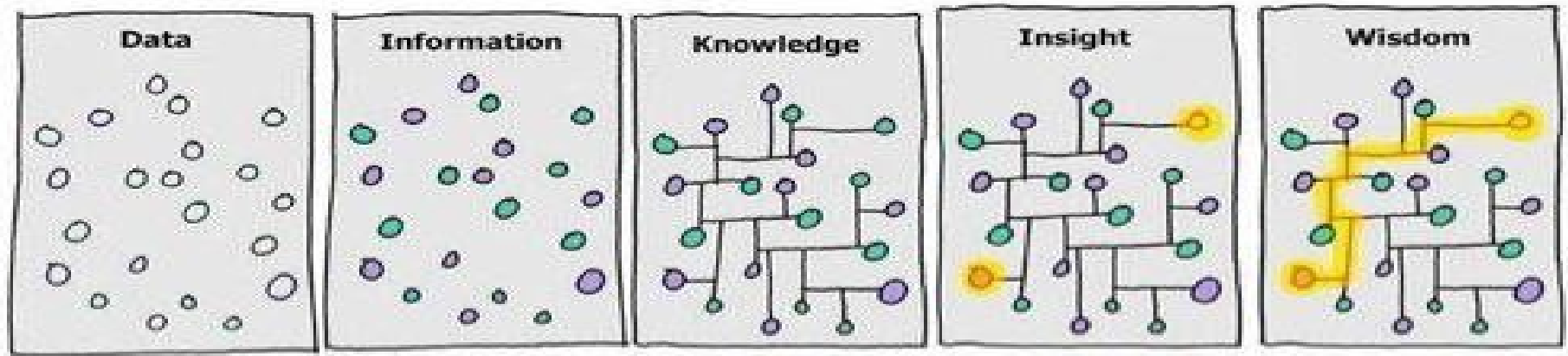


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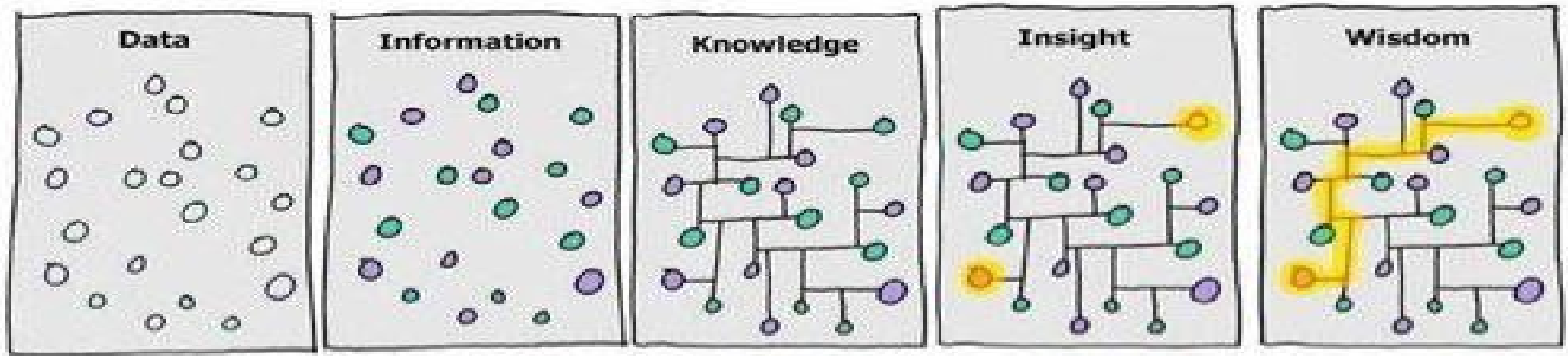
annotated data



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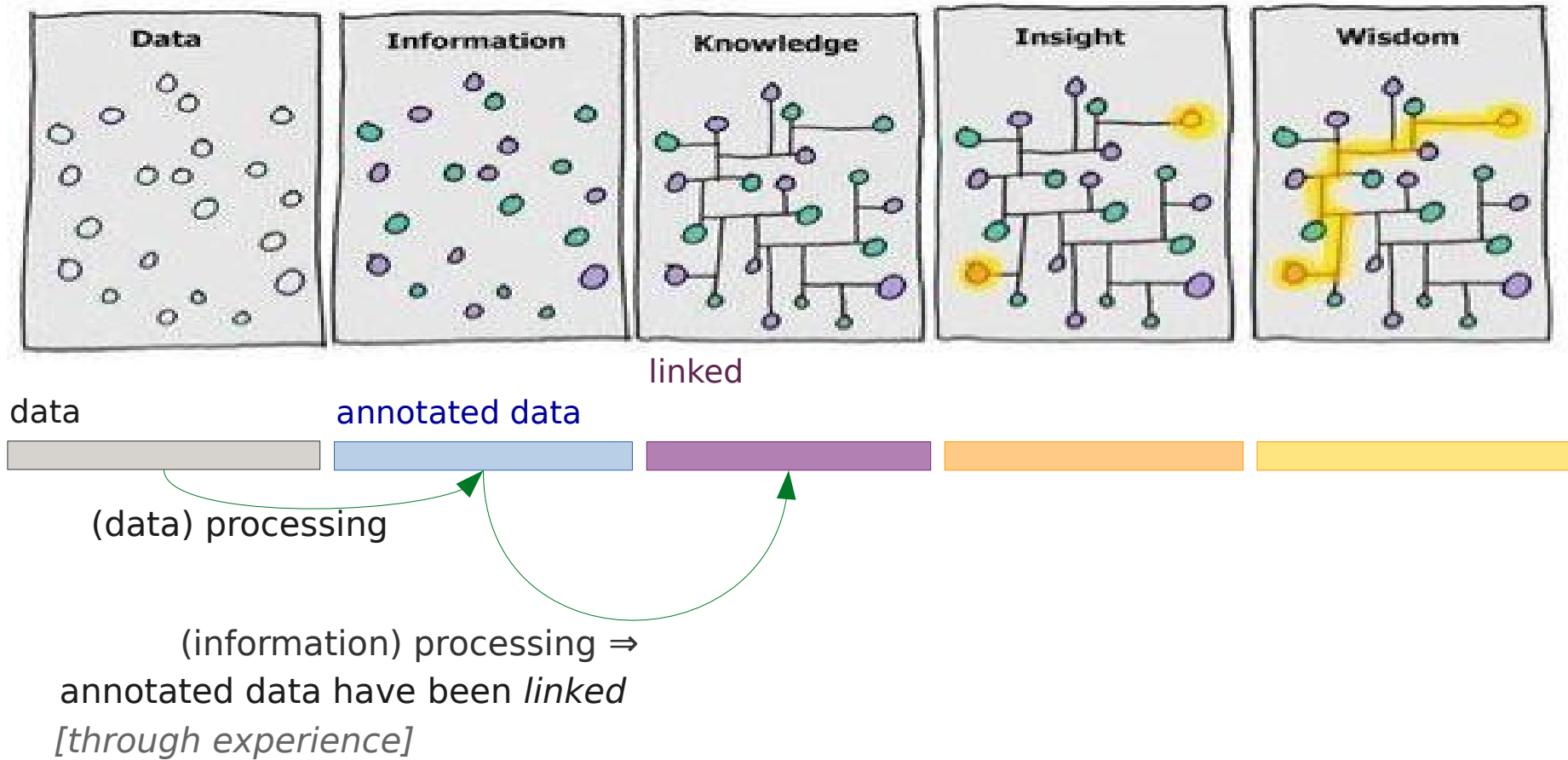


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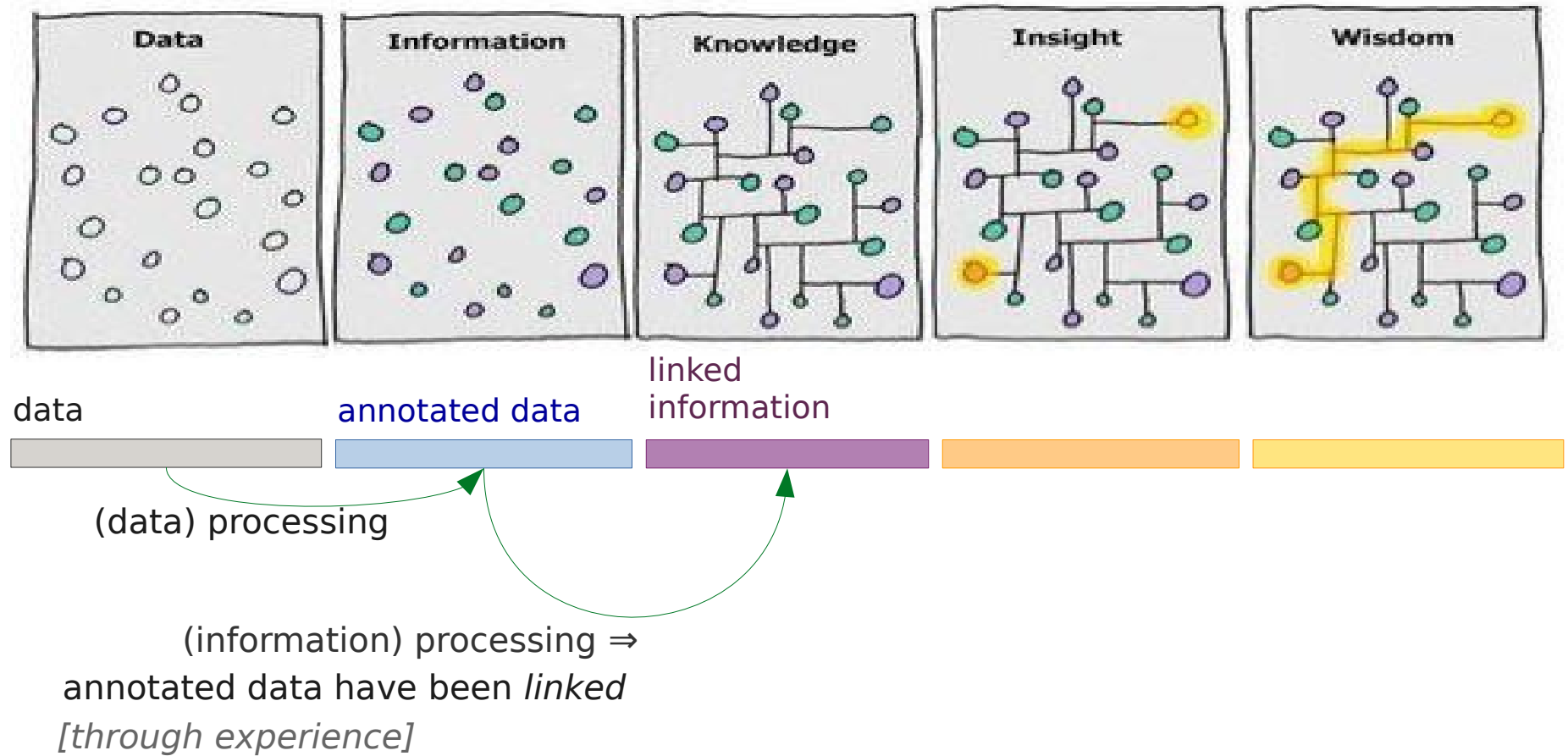
(information) processing \Rightarrow
annotated data have been *linked*
[through experience]



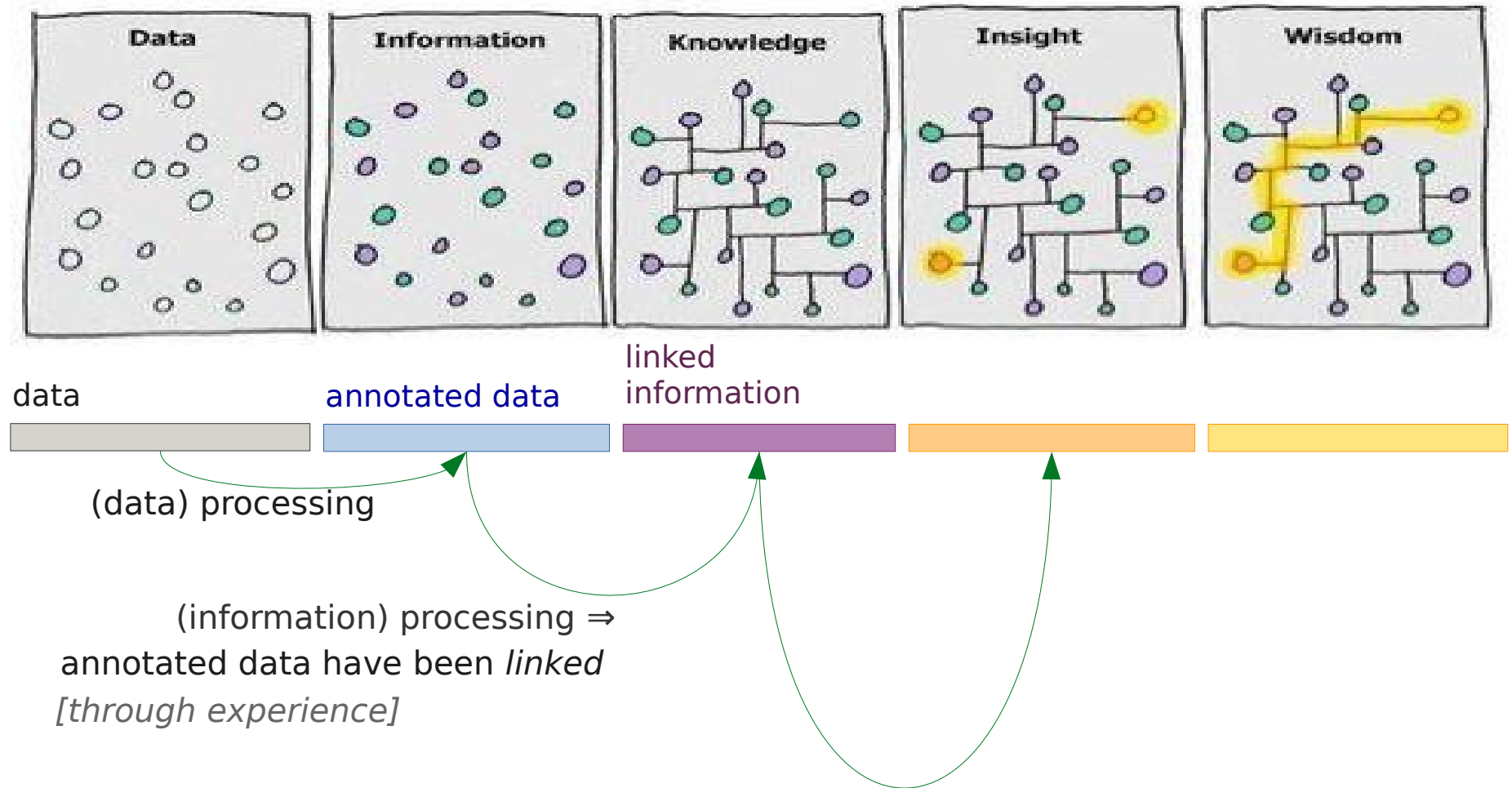
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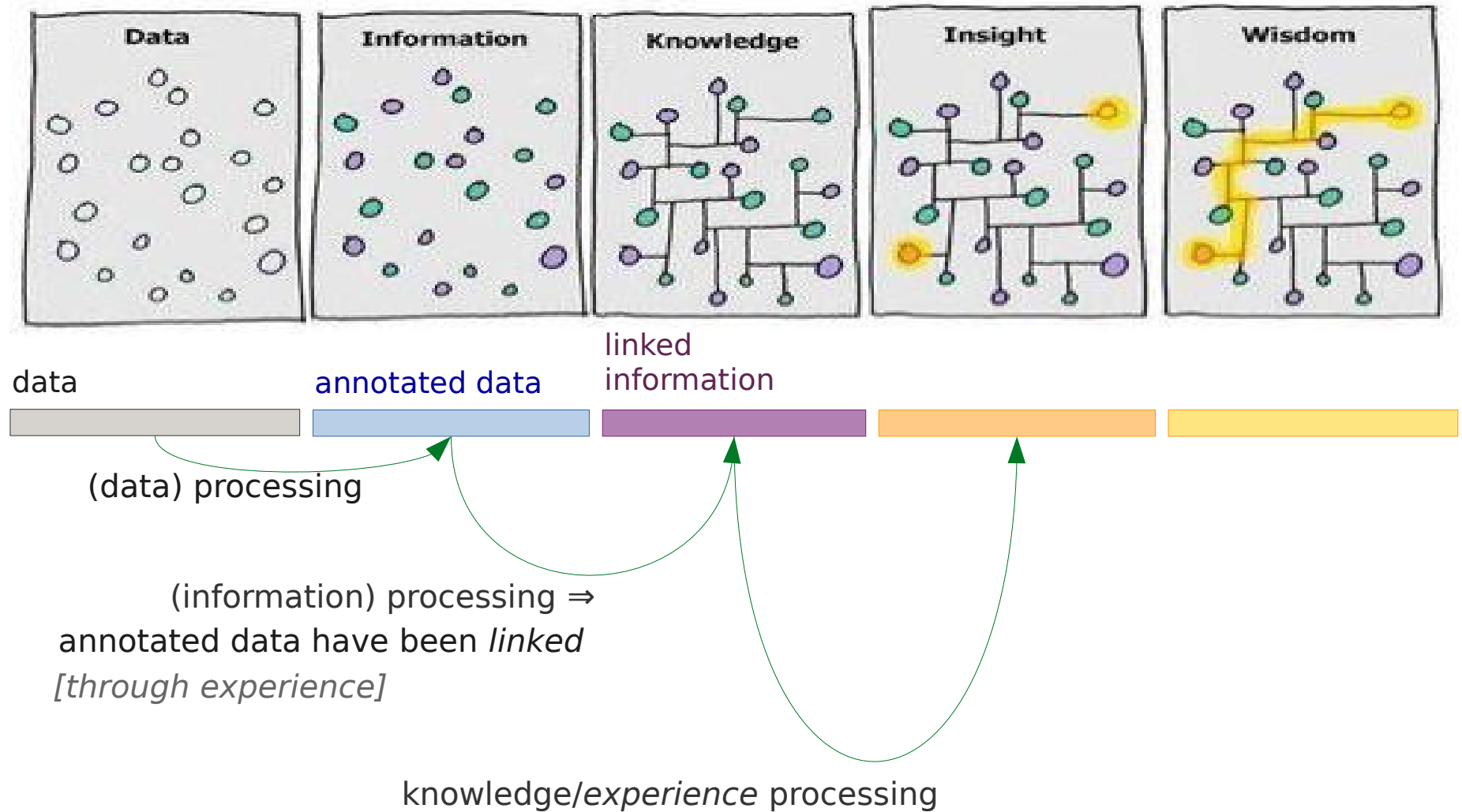
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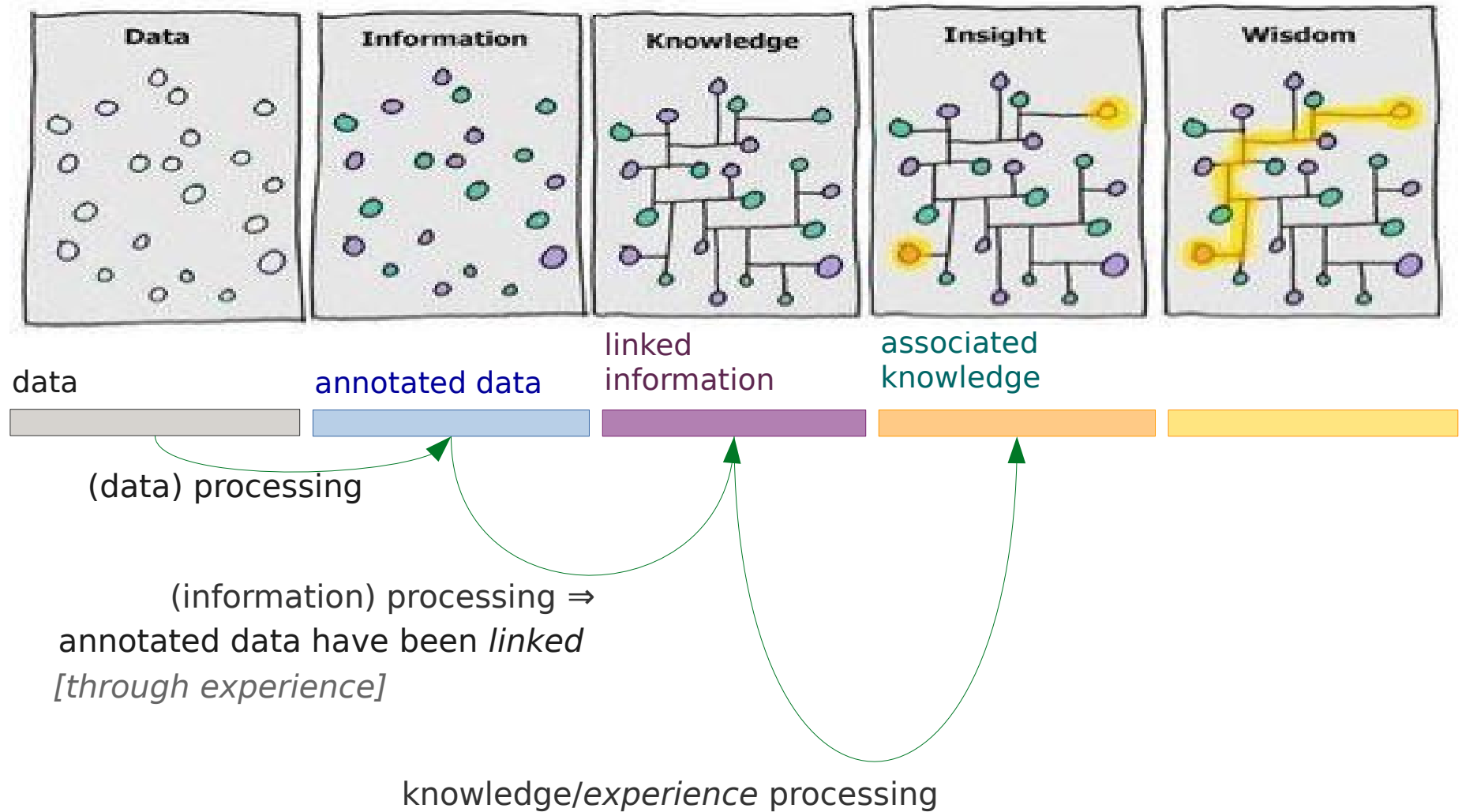
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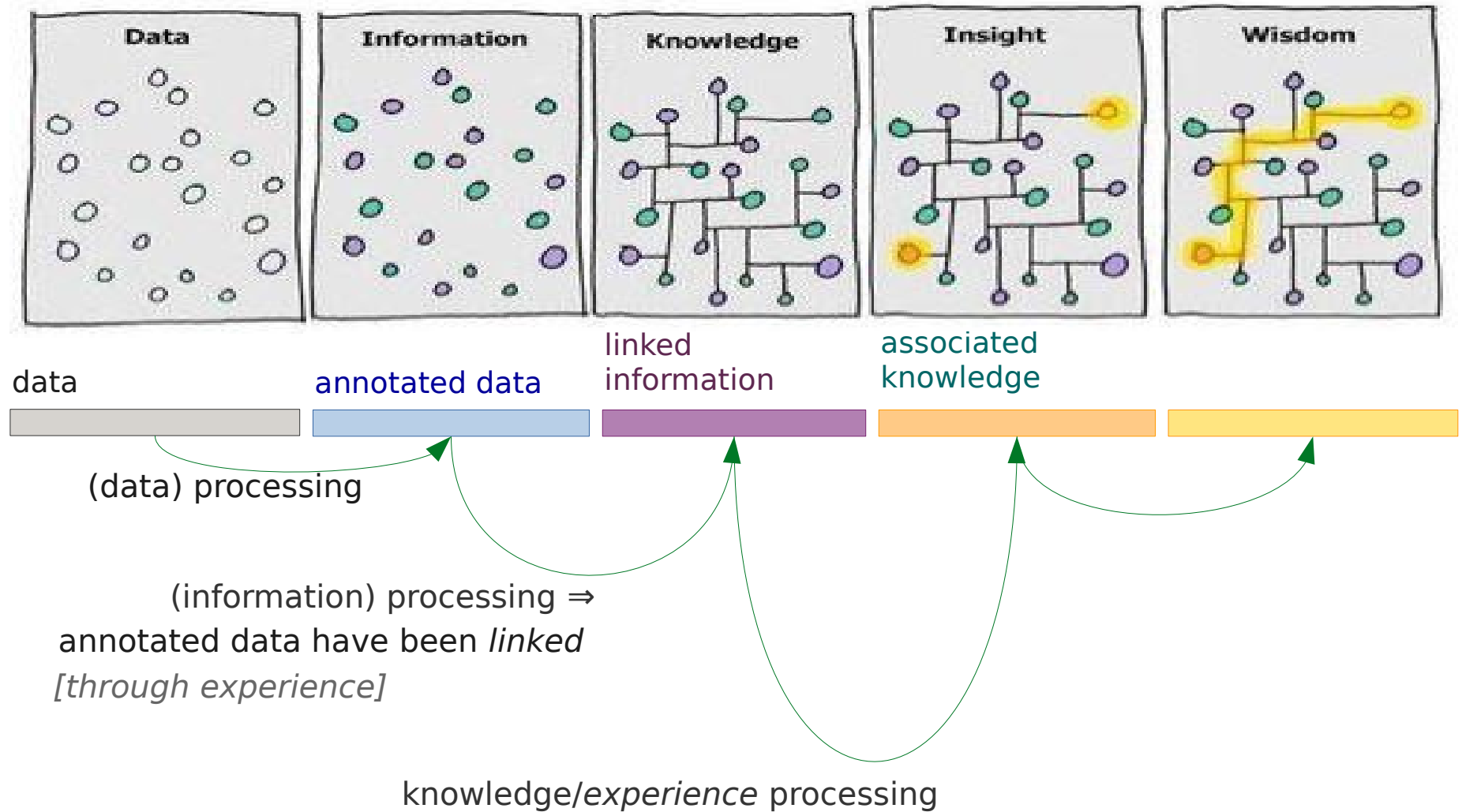
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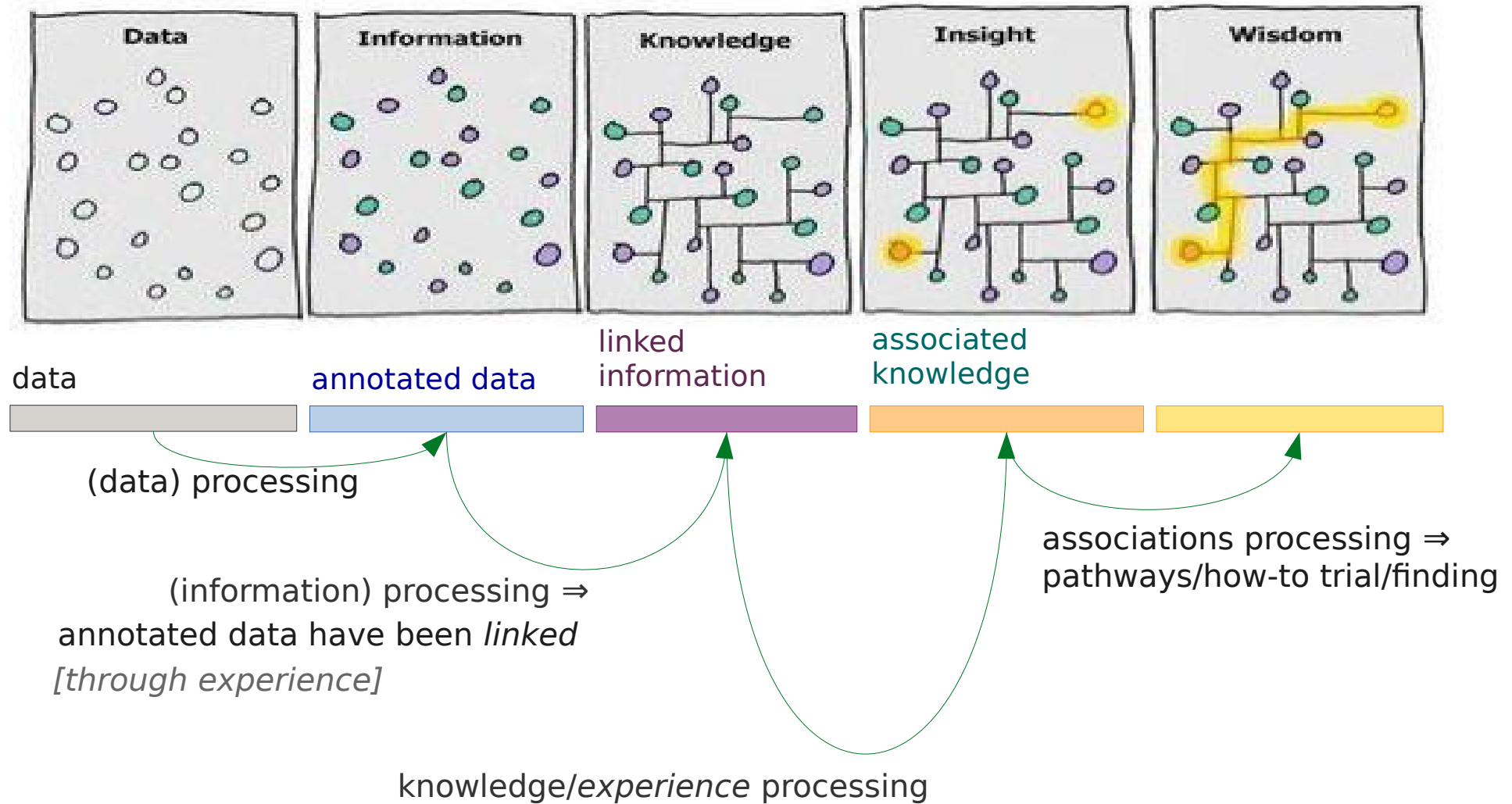
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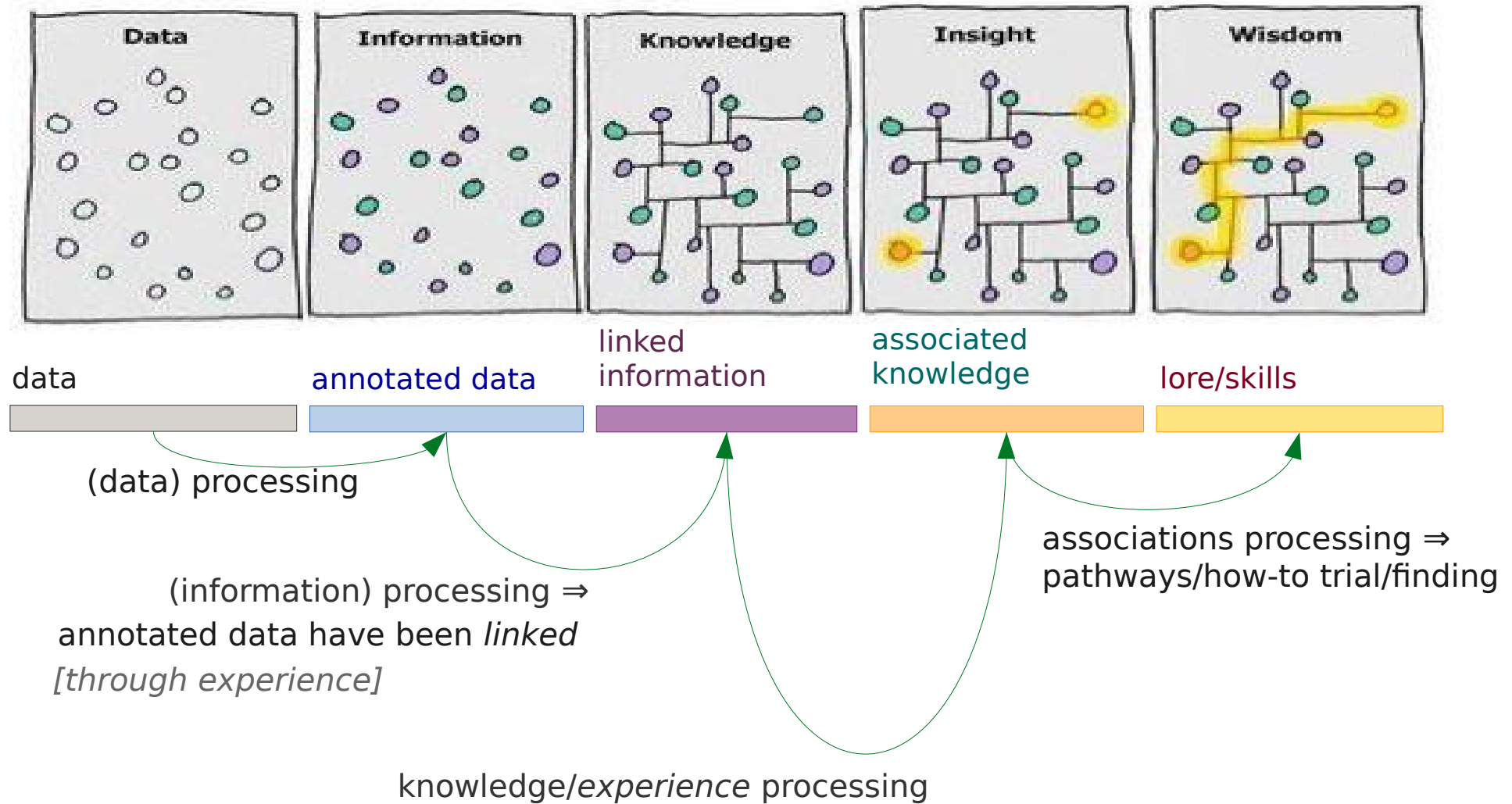
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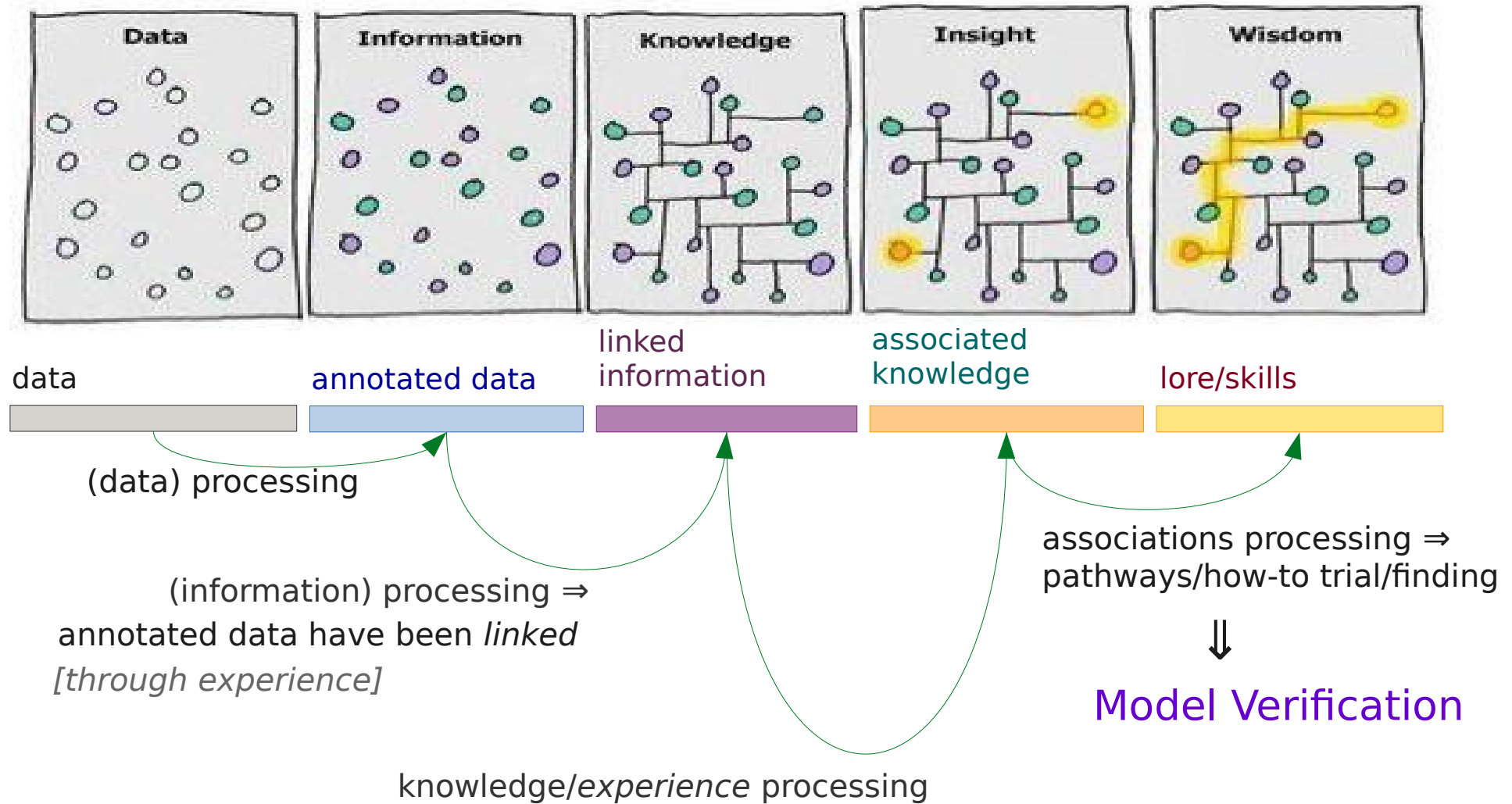
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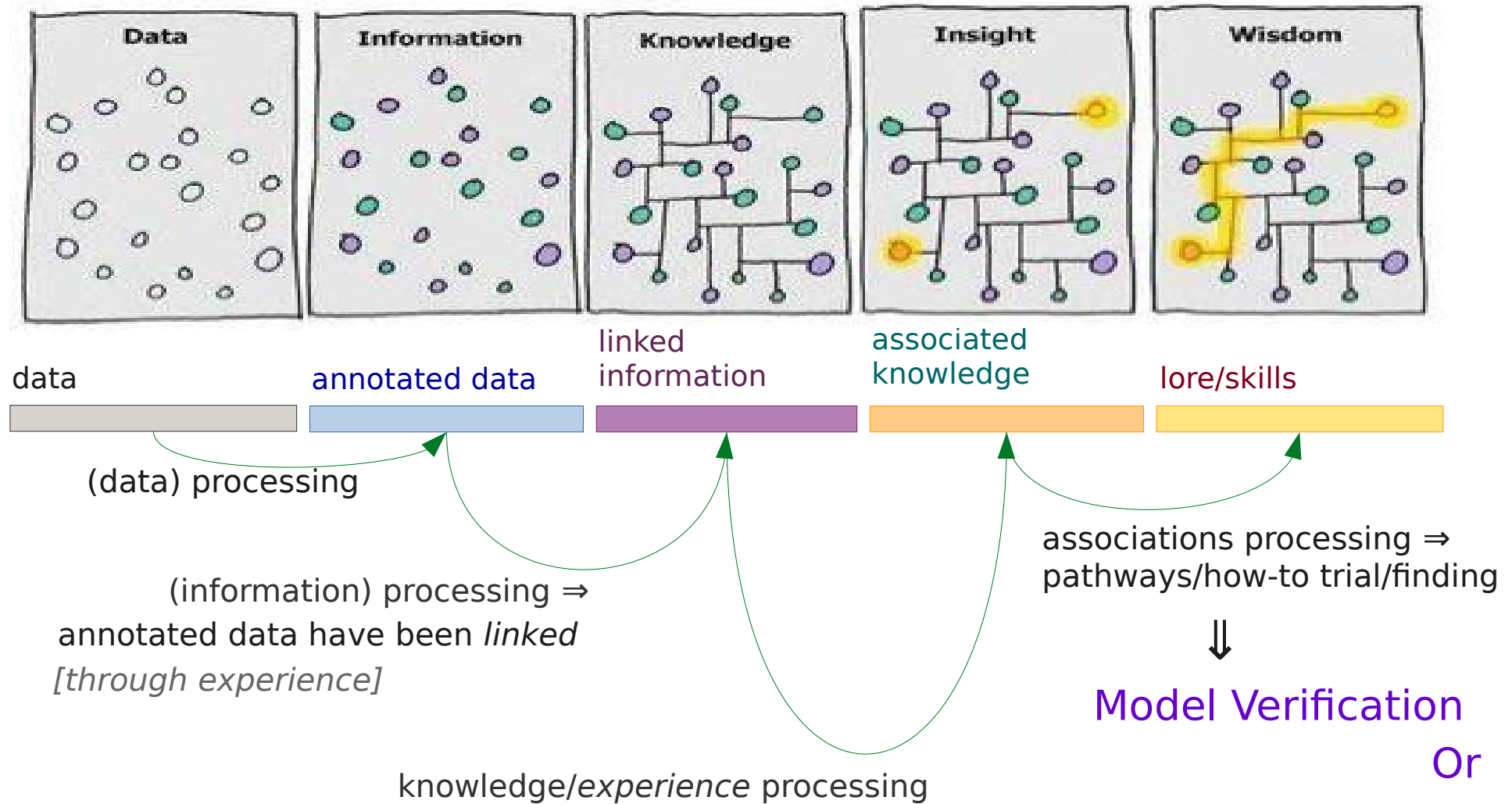
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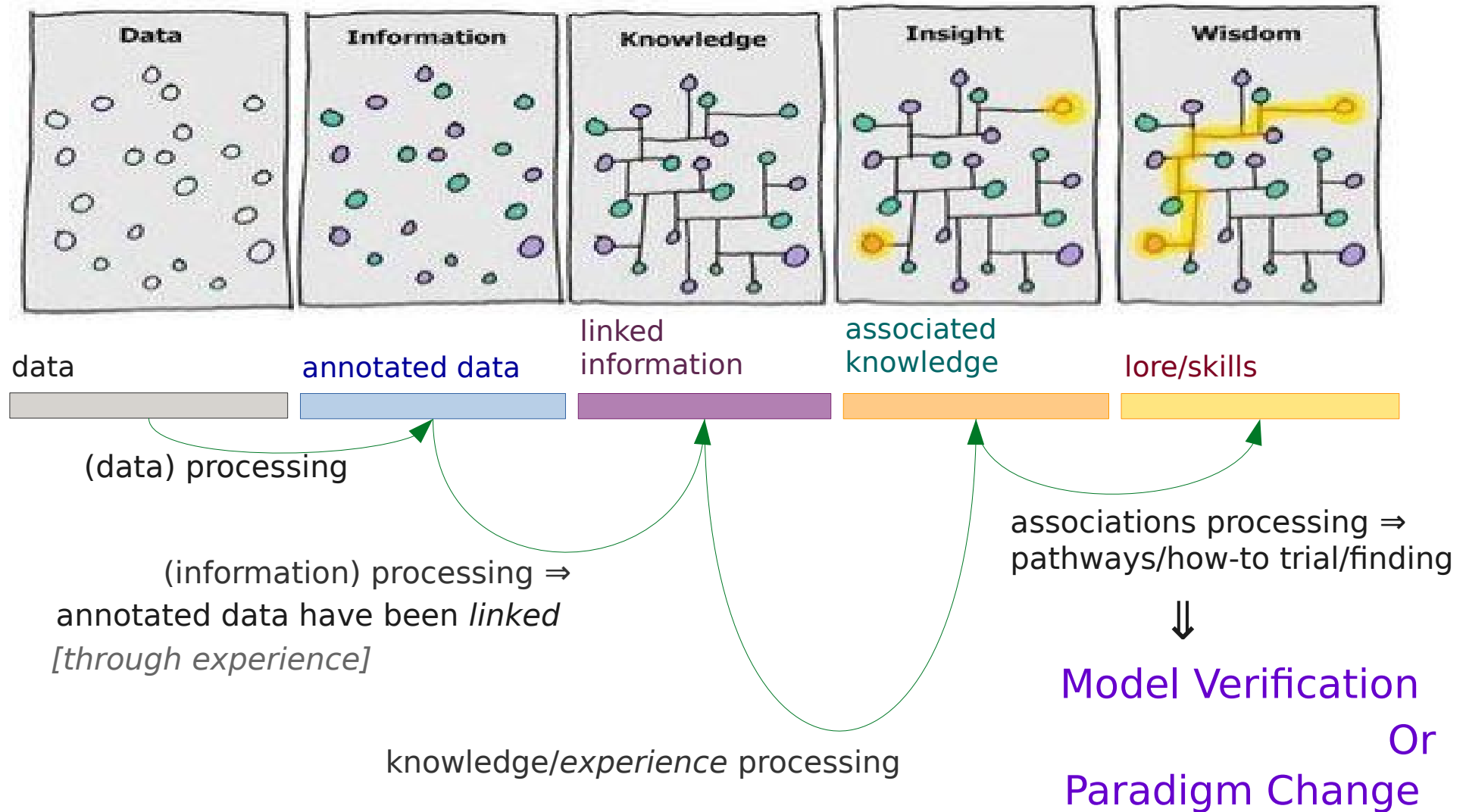
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Legend:

processed data: 

data sources: 

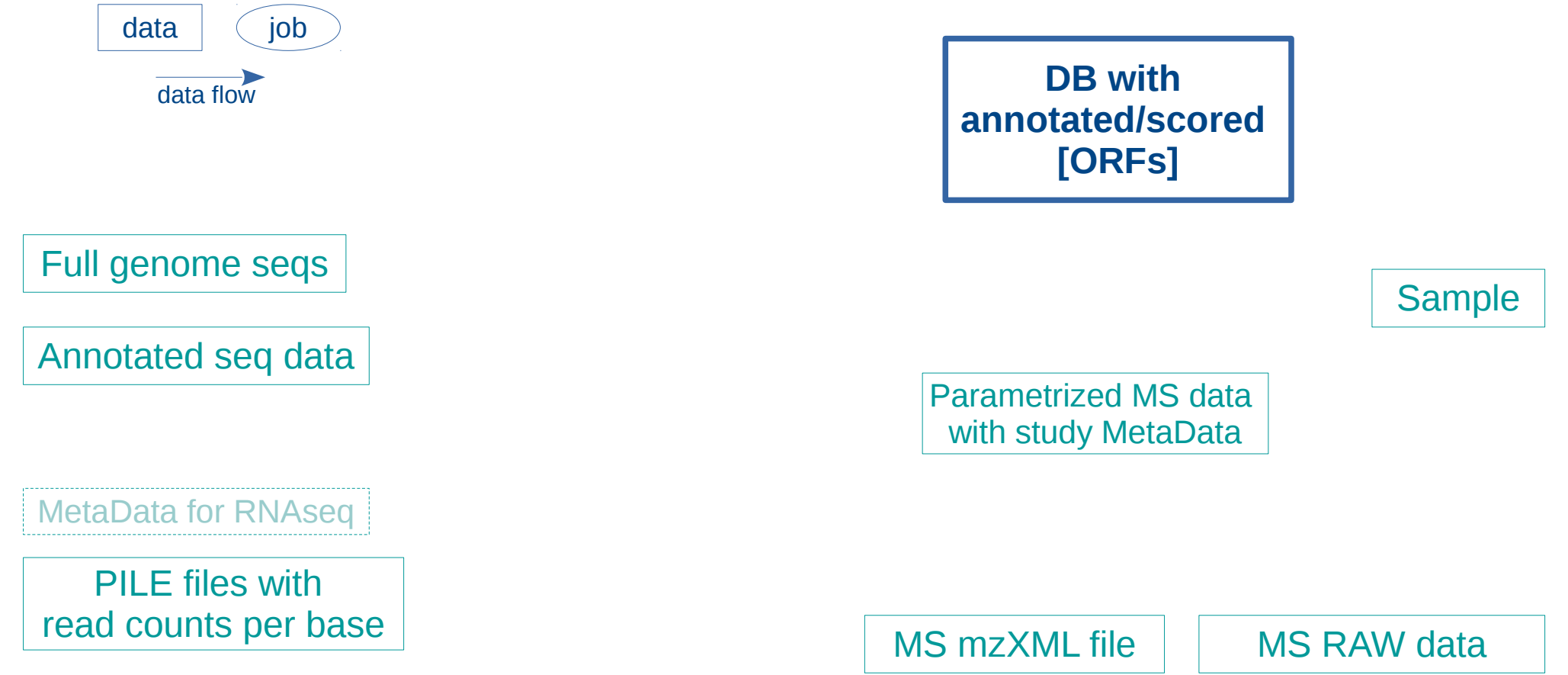
released job's results: 



Current work-flow for Mycoplasma Scheme

**DB with
annotated/scored
[ORFs]**



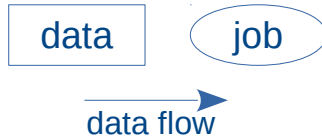


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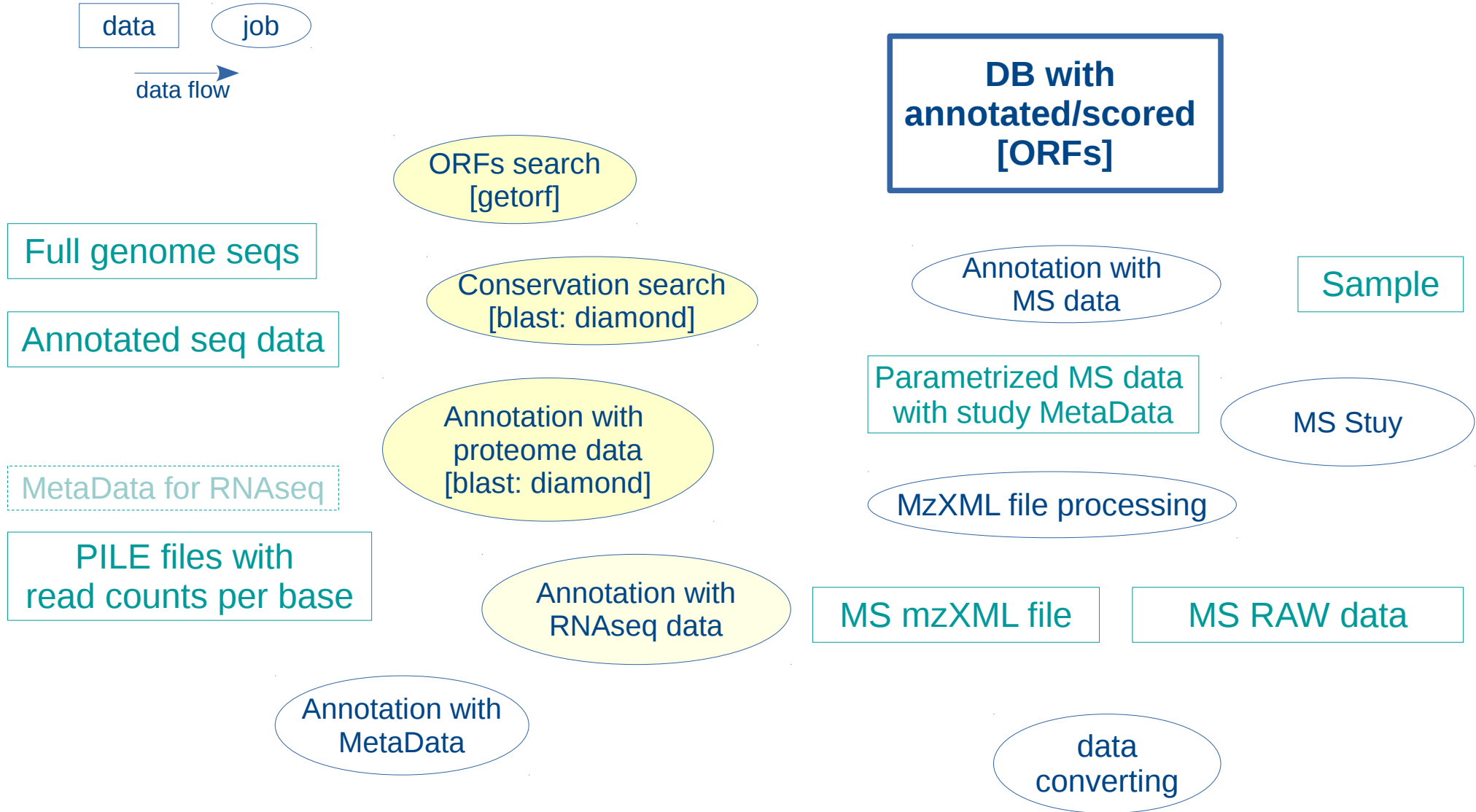
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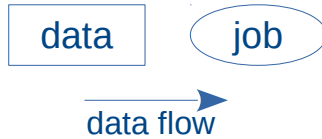


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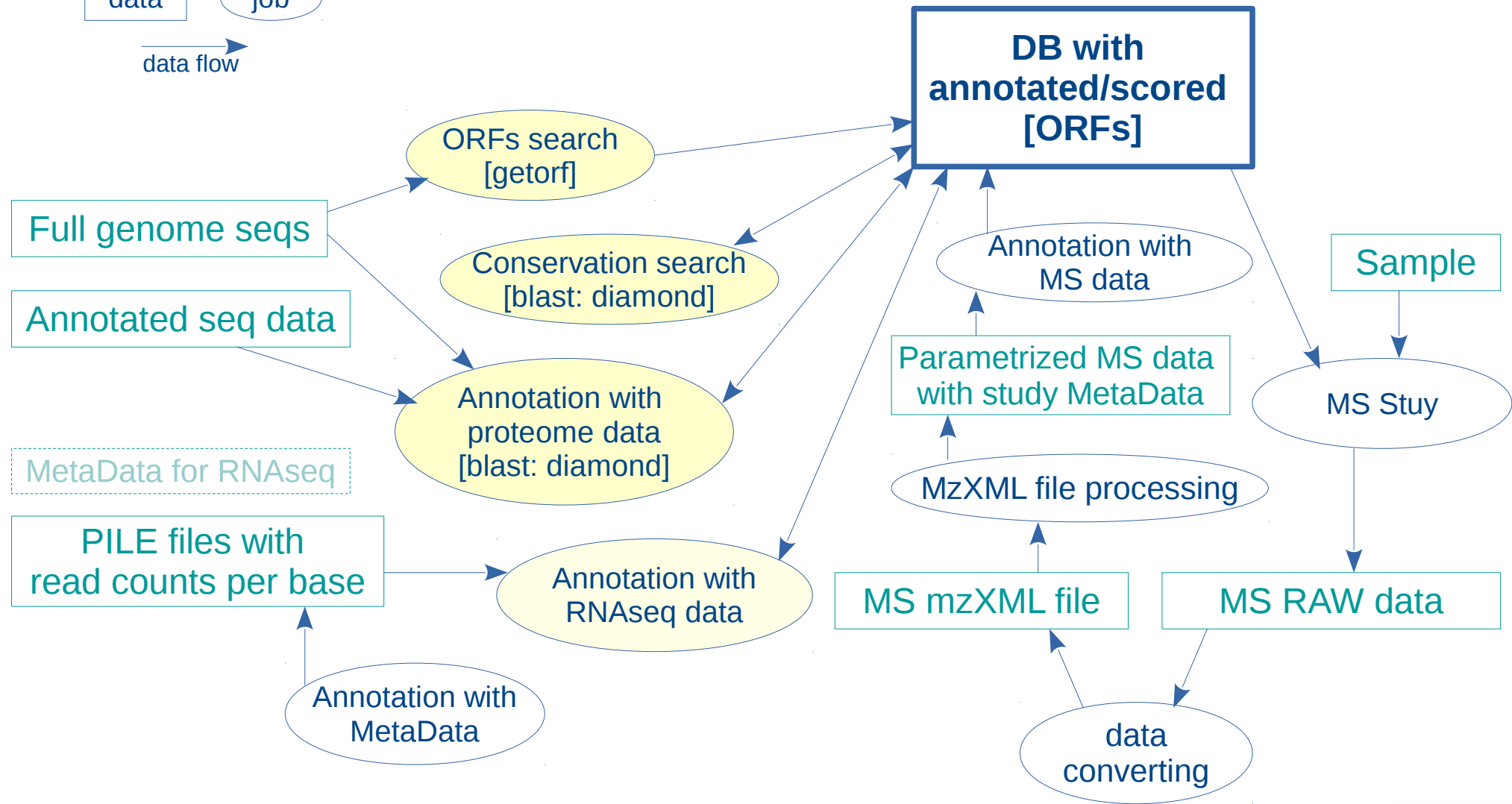
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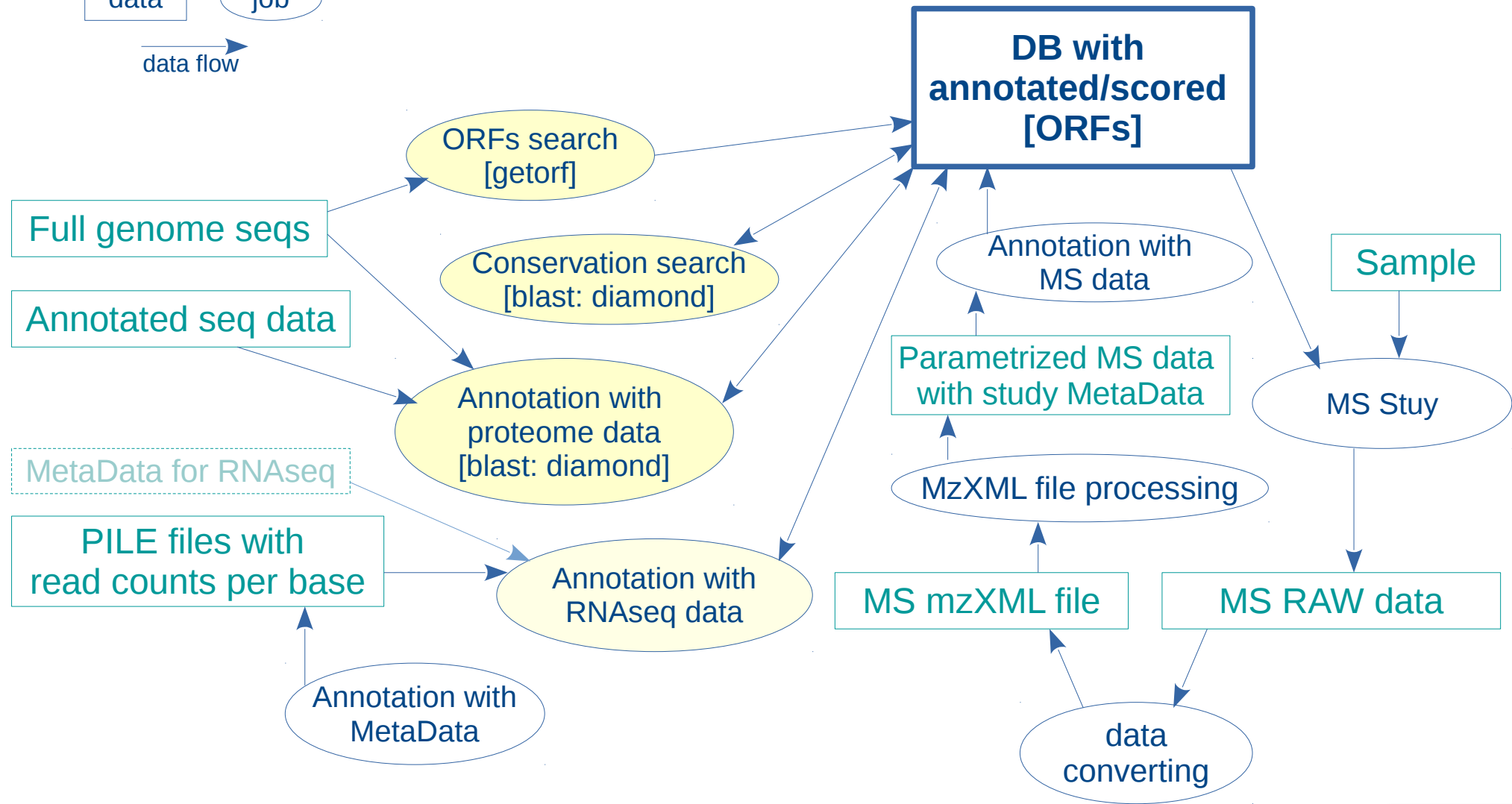
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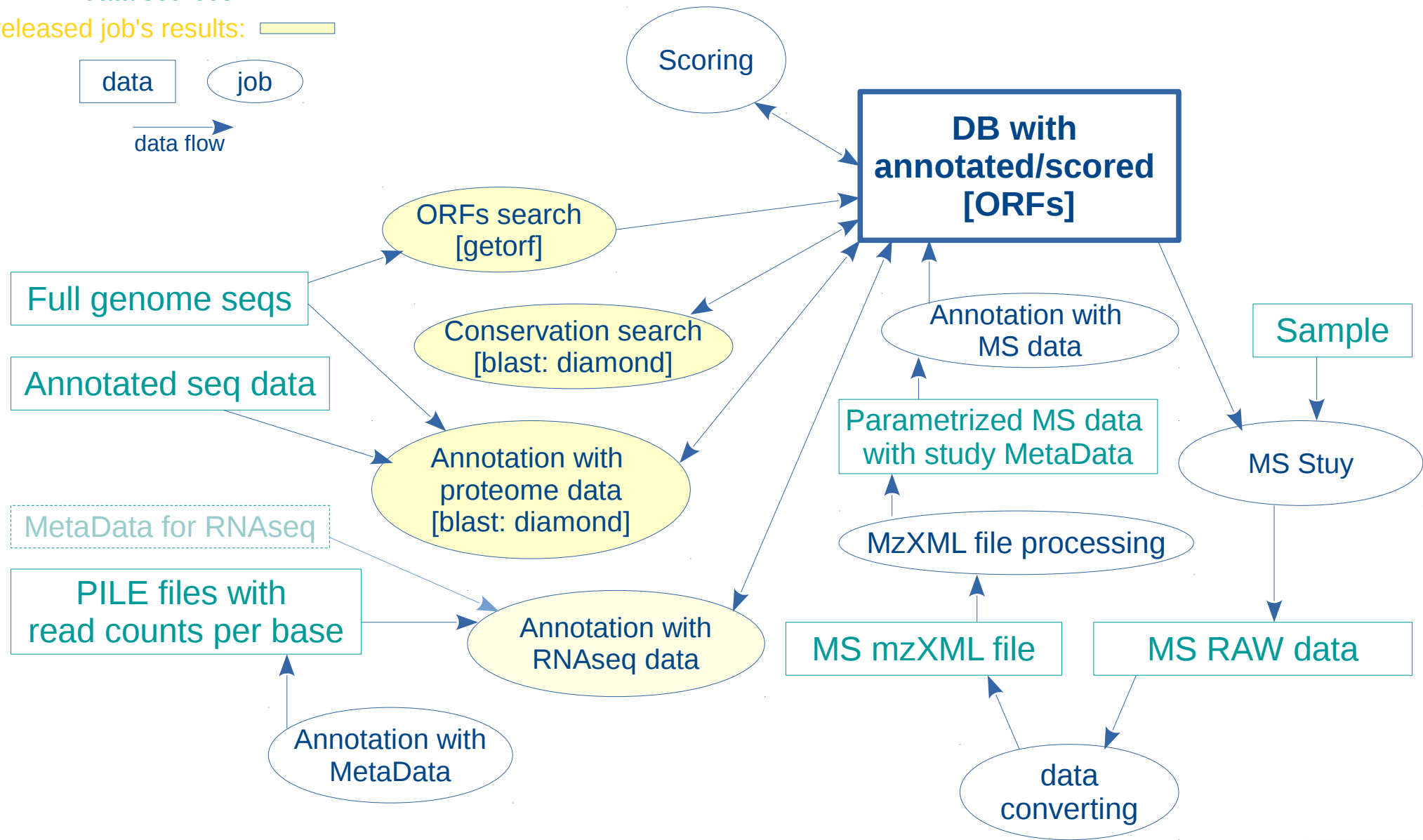
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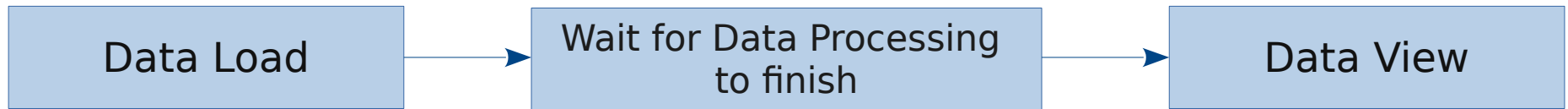
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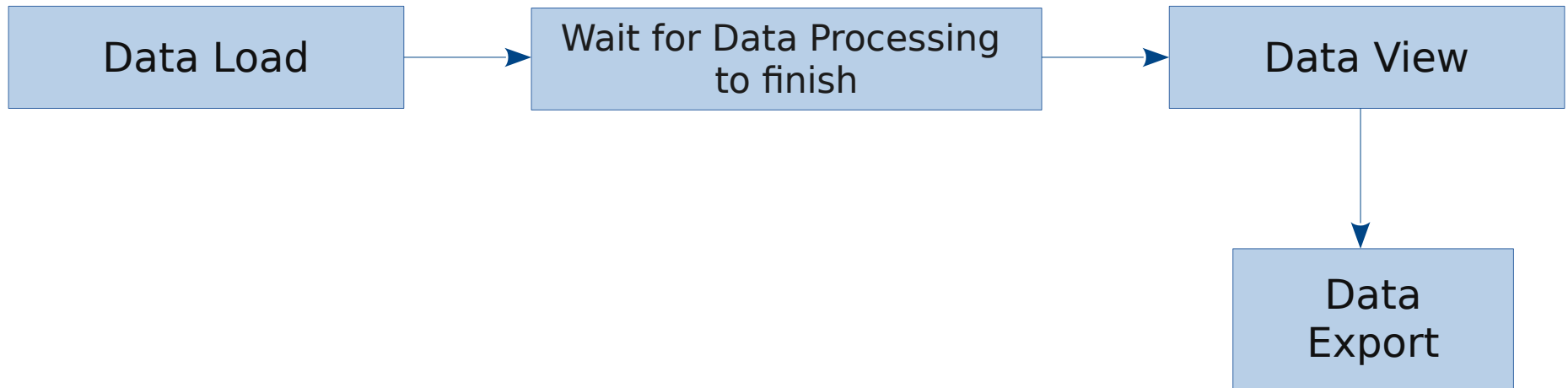
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Sequential steps for users



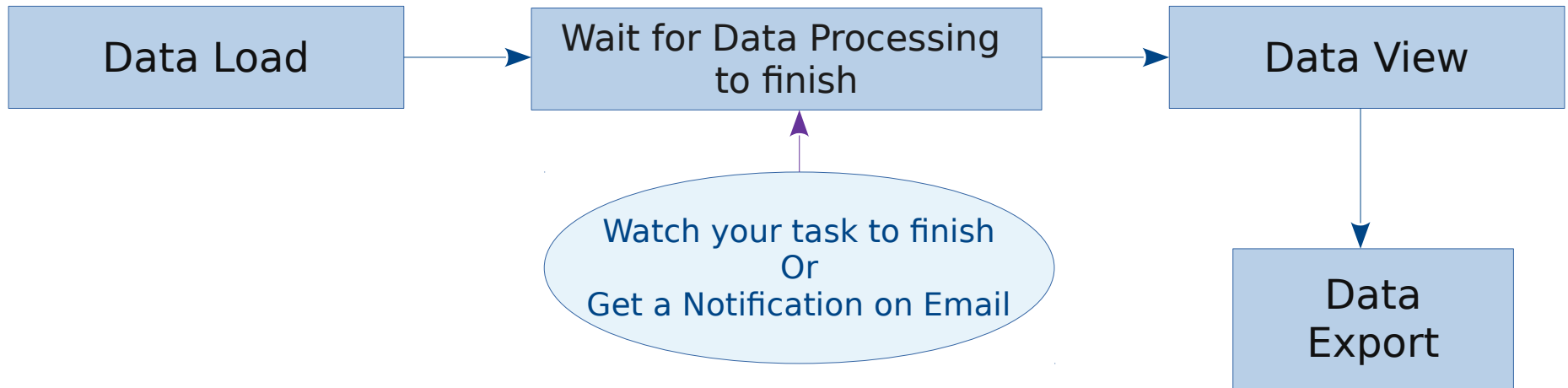
Current work-flow for Mycoplasma

Sequential steps for users



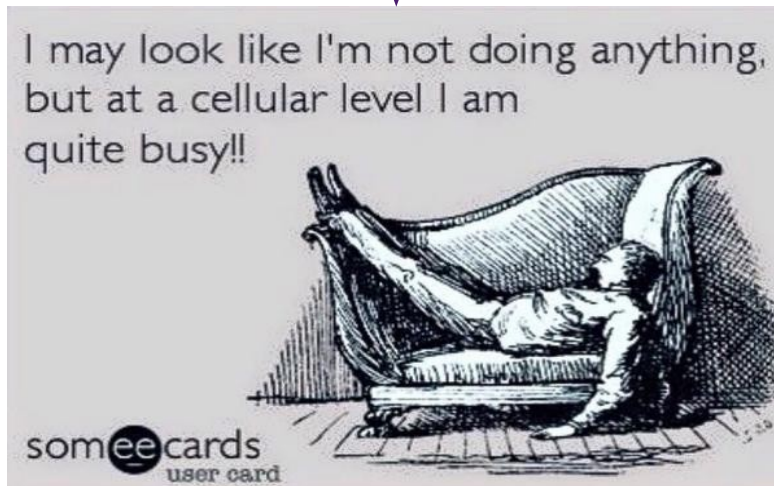
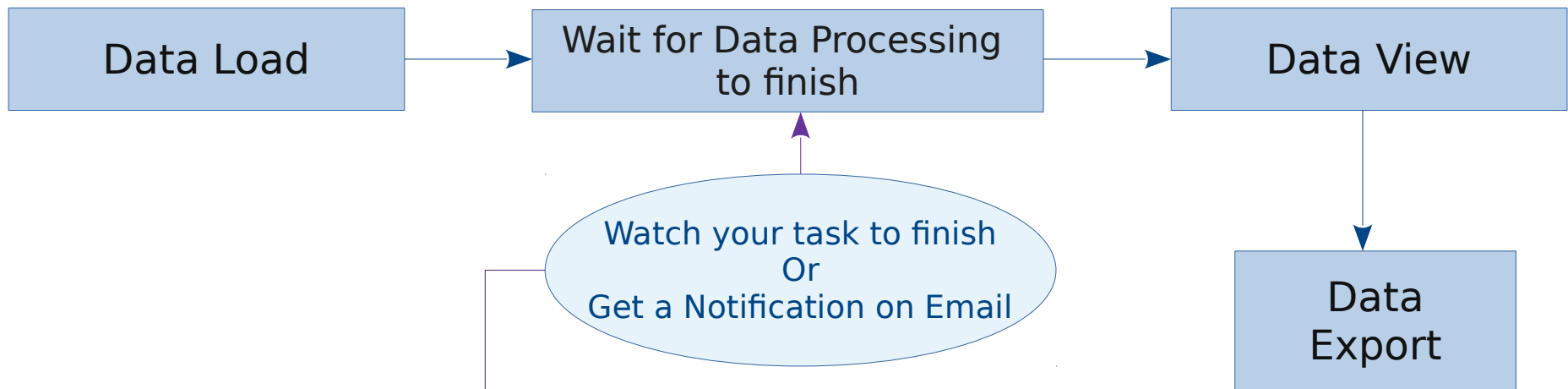
Current work-flow for Mycoplasma

Sequential steps for users



Current work-flow for Mycoplasma

Sequential steps for users



I. My background

II. Data-bases vs Knowledge-bases in a nutshell

III. Current work-flow for Mycoplasma:

1. Schematically

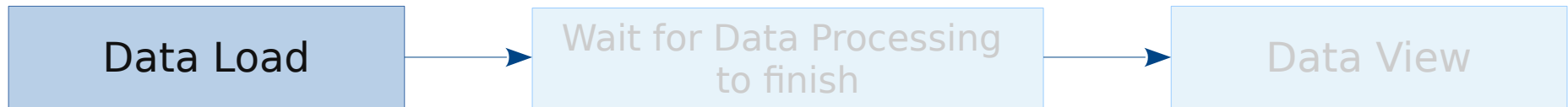
2. Sequentially

3. Visually [GUI]

IV. Q & A



Current work-flow for Mycoplasma GUI



M Home Tools ▾ Studies Pipelines ▾ Data ▾ Login System ▾

RNAseq data mapping

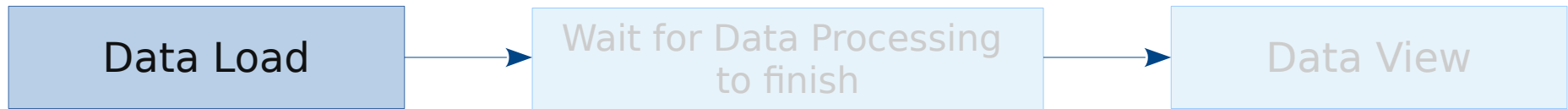
Genome Annotation ▾

- ORFs search
- Conservation search
- RNAseq validation**
- MS validation

ORFs data to attach RNAseq data	PILE file	Experiment metadata										
<p>Showing 1 to 4 of 4 entries</p> <p>Search: <input type="text"/></p> <table border="1"><thead><tr><th>Species, strain</th><th></th></tr></thead><tbody><tr><td>Mycoplasma Pneumoniae, M129</td><td><input type="radio"/></td></tr><tr><td>Mycoplasma Genitalium, G37</td><td><input type="radio"/></td></tr><tr><td>Mycoplasma Gallisepticum, S6</td><td><input type="radio"/></td></tr><tr><td>Mycoplasma Conjunctivae, HRC/581T</td><td><input type="radio"/></td></tr></tbody></table>	Species, strain		Mycoplasma Pneumoniae, M129	<input type="radio"/>	Mycoplasma Genitalium, G37	<input type="radio"/>	Mycoplasma Gallisepticum, S6	<input type="radio"/>	Mycoplasma Conjunctivae, HRC/581T	<input type="radio"/>	<input type="text"/> <input type="button" value="Browse ..."/>	<p>Specification is to be provided!</p>
Species, strain												
Mycoplasma Pneumoniae, M129	<input type="radio"/>											
Mycoplasma Genitalium, G37	<input type="radio"/>											
Mycoplasma Gallisepticum, S6	<input type="radio"/>											
Mycoplasma Conjunctivae, HRC/581T	<input type="radio"/>											



Current work-flow for Mycoplasma GUI



[M Home](#) [Tools ▾](#) [Studies](#) [Pipelines ▾](#) [Data ▾](#) [Login](#) [System ▾](#)

This file is already in the system and the task is NOT launched! ✕

RNAseq data mapping

As soon as your task is finished the information will be posted to your email (if you are signed in). Also, you can watch [task page](#) for the updates on time when the task is finished.

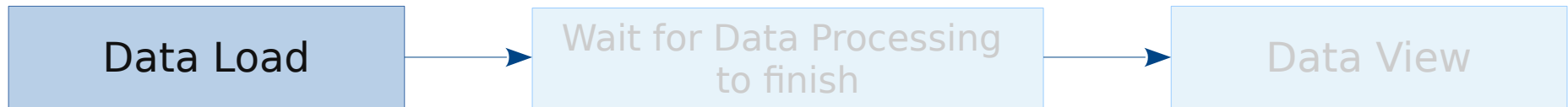
Species name to attach RNAseq data of ORFs:
Mycoplasma Pneumoniae, M129

Your PILE file name:
Tn223_gly_2_11013_GTGAAA_read.pile

Your PILE file md5sum:
0d298a39e1529c7faedbe6bbca7f5a82



Current work-flow for Mycoplasma GUI



[M Home](#) [Tools ▾](#) [Studies](#) [Pipelines ▾](#) [Data ▾](#) [Login](#) [System ▾](#)

Your task is launched, process's pid is: **24377** ✕

RNAseq data mapping

As soon as your task is finished the information will be posted to your email (if you are signed in). Also, you can watch [task page](#) for the updates on time when the task is finished.

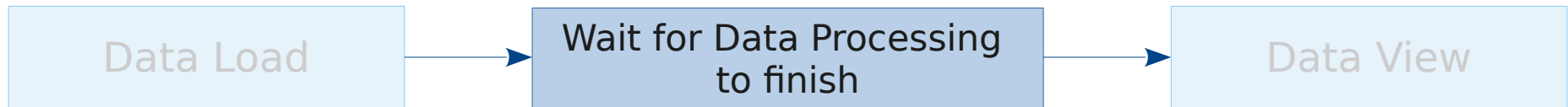
Species name to attach RNAseq data of ORFs:
Mycoplasma Pneumoniae, M129

Your PILE file name:
TF433_6h_1_11032_TTAGGC_read.pile

Your PILE file md5sum:
e5998991224633fc3ad981a34a1991ed



Current work-flow for Mycoplasma GUI



M Home Tools ▾ Studies Pipelines ▾ Data ▾ Login System ▾

System tasks

Showing 1 to 7 of 7 entries

Search:

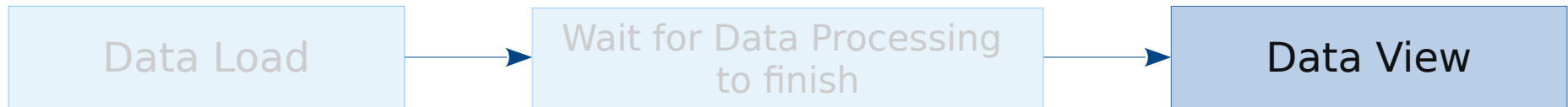
▲	Task name	↕	Pid	↕	Started	↕	Finished	↕	Status	
1	ORFs search		16158		2016-07-07 19:02:10.321000		2016-07-07 19:02:24.139000		delivered	admin
2	ORFs search		17278		2016-07-07 19:03:23.339000		2016-07-07 19:03:36.105000		delivered	admin
3	ORFs search		18876		2016-07-07 19:05:08.276000		2016-07-07 19:05:25.602000		delivered	admin
4	Conservation search		27159		2016-07-18 15:00:47.793000		2016-07-18 15:02:45.558000		delivered	admin
5	MS data processing		29872		2016-07-18 16:08:47.800000		2016-07-18 16:08:50.133000		delivered	admin
6	RNAseq maps		20138		2016-07-19 10:44:11.646000		2016-07-19 10:49:28.118000		delivered	admin
7	RNAseq maps		28301		2016-07-19 11:19:10.298000		2016-07-19 11:24:26.395000		delivered	admin

Show entries

About
Browse tasks
Help



Current work-flow for Mycoplasma GUI



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RNAseq for *Mycoplasma Pneumoniae*, strain M12

Overlapping: if you are looking at annotated or putative ORFs click [show all ORFs](#) in an overlap bunch.

For all ORFs in an overlap bunch please click [show all ORFs](#).

Showing 101 to 150 of 13,041 entries

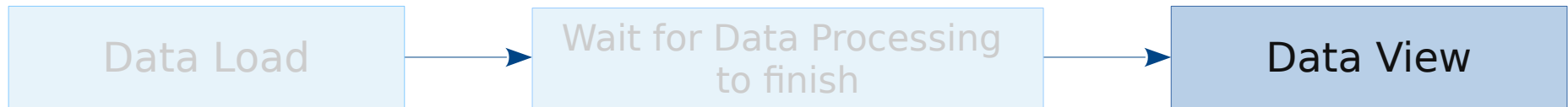
[ORFs](#)
[Conservation](#)
[RNAseq](#)
[MS data](#)

[show annotated ORFs only](#)
[show putative ORFs only](#)
[show all ORFs](#)

orf_id ▲	J_id ▽	start ▽	end ▽	strand ▽	length ▽	FPKM data ▽	exprScore ▽	FPKM data ▽	exprScore ▽	locus tag ▽	# found ORFs [consv] ▽	overlaps ▽
100	id00227	14992	15762	+	257	0.75	7.95	0.75	7.19	MPN013	0	100
101	id00235	15794	15859	+	22	0.12	1.34	0.18	1.81		0	101
102	id00236	15829	15888	+	20	0.13	1.42	0.2	2.0		0	101
103	id00240	16090	16149	+	20	0.34	3.61	0.17	1.66		0	101
104	id00237	15867	16502	+	212	0.34	3.63	0.24	2.32	daE	1	101
105	id00243	16573	16656	+	28	0.36	3.81	0.28	2.72		1	105
106	NF	16696	16749	+	18	0.35	3.72	0.34	3.28		0	106
107	NF	16743	16796	+	18	0.32	3.46	0.33	3.24		0	106
108	id00245	16790	16873	+	28	0.34	3.61	0.32	3.1		0	106
109	id00247	16923	17033	+	37	0.29	3.14	0.24	2.37		0	109



Current work-flow for Mycoplasma GUI



<div> M Home Tools Studies Pipelines Data <input type="text" value="Search"/> <input type="button" value="Submit"/> Login System </div>									
ORFs for Mycoplasma Pneumoniae, strain M129 (only putative orfs)						<div> ORFs Conservation RNAseq MS data </div>			
Showing 1 to 7 of 7 entries (filtered from 12,346 total entries)						Search: <input type="text" value="AAAAAAAA"/>			
orf_id	J_id	start	end	strand	length	nucleotides seq	peptides seq		
1387	NF	199622	199675	+	18	TTGGTTTTAAAGTAATTTCAAAAAAAAAAATAACACACTGAGTAGAACCATTT	MVLKVISKNNNTLSRTI		
4726	id09746	641127	641216	+	30	TTGAACCAGAGTCAAACCATACTTCCAAGGTATCAGTTTCCTTTTATATTCAACTCCTGGCTGTATTTCTTTGGGTTTAAAAAAAAAT	MNQSQITLPRYQFPFYIQLLAVFSLGLKKN		
6310	id12361	811915	811787	-	43	ATGGGATTCCTCGCGCTGGGATTGCTCGCTTTCCTGGTGATAAAGGGAAGGGTGAGGATAAGAAACTACTAAAAAAAAATCAGAAATCAAGCAAGCGAGTAGTCCACAACAGTTTACAACCGT	MGFPCALGLLAFLVIKGRVRIRKLLKKNQKSSKRVPQQFYNR		
6656	id11658	763377	763156	-	74	GTGGTTTCTATATTACCGTCACCTTTTAATGTGAATTACGCGTGAATTGAAATCAGTTGCCAAGGCGATCAAAAGTTAAAGCCGTCAGCAAAGGCTGAAAACATTTAAAAAAAACAAAGACAATGAGCAAAACAACGAACACTGTCGATCGTTTTTTAGCGAAGGAATTATCTTTCAGATCCATTAGACCCTAATAGTTCTTTTCTTTTGTGTTTGAA	MVSILPSLLMWITRELKSVSDQGDQKLKPSAKAENIKKKQKTMSTKNTVDRFLAKELSFRSIRPLIVLFLFVFE		
7156	id10543	690791	690606	-	62	TTGTCGATAAGAGTTTTGATCAAGCTAAAAACCTGTTGAAGCTACACCTTTCATTAGTGTGCCTAAACTTAGTCAAAAAAATTATTATTGGCCGTAATGCCCAATGGTGAAAAAGATCGGGATGCAATGCGTCAAAAACACTGGAGTACTATGACTGCAATGCTTTGTGGAATTGTTG	MSIRVLIKLTWCYSYTFPLVCLNLVKKKLLLVAMPKWWRSGCKCVKNYSTMTAMSLWNCL		
7677	NF	622654	622601	-	18	TTGCAGTTTCTTTCACCAACCCGTTTTGAGTTCAAACTAAAAAAAAC	MQFLSPTRFEFLKKKKN		
7749	id09334	614065	613883	-	61	ATGATTGAAAATTTAGTTTTTTAATTAATGTTCAAACCGAAATTTCAATTAGCTTTCCGTTTTTAAAGTTGCTTTTCAAAAAAACAATAAAGAGTTATTTTACTGTTGATGCGCAAAAAGAGATTGTTGTCAAGGATTCCTTTAGTTCCTATTTTATTATGTGGAACAGTTT	MIENFSFLINVQTEISISFPFLKLLFQKTKLKSYFCWCAKRDCCQGFLPLVLYFYVEQF		
orf_id	J_id	start	end	strand	length	nucleotides_seq	peptides_seq		



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Questions and Answers



Questions and Answers

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~~sheep shearing...~~
Could you implement that?
— yes

Other questions please?



Thanks to:

Maria

Samuel

Javier

Eva

Veronica

Eduard

Luis

&

BioCore Unit

