





# WP2 AI- & HPC-Cross Methods at Exascale – Monthly Meeting

Prof. Dr. – Ing. Morris Riedel et al. School of Engineering & Natural Sciences, University of Iceland 2022-08-26, RAISE WP2 Monthly Meeting August 2022, Online



@MorrisRiedel

https://www.youtube.com/channel/UCWC4VKHmL4NZgFfKoHtANKg

morris@hi.is

#### WP2 Meeting August – Welcome & Agenda



- Approval of minutes from Monthly Meeting July 2022
   (All), ~5 Min
- 2. Review WP2 Status on Interaction Rooms
  - > (Morris Riedel, Matthias Book, Helmut Neukirchen), ~5 Min
- 3. September Review Preparation (M21)
  - > (Morris, Andreas, et al.), ~20 Min
- 4. New Task 2.3 Quantum Computing
  > (Marcel et al.), ~10 Min
- 5. Status WP2 Training Plans
  - ➤ (Morris et al.), ~5 Min
- 6. Compelling Scoreboard Review & Next Steps
   > (All), ~10 Min





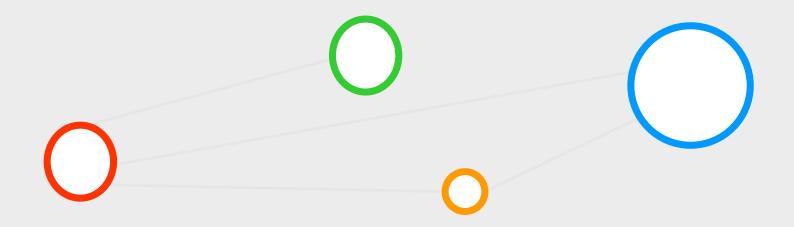






#### Agenda Item (1) – Minutes Approval – July 2022







#### Minutes Approval – Monthly Meeting July 2022

#### > Minutes available in BSCW

- https://bscw.zam.kfa-juelich.de/bscw/bscw.cgi/3340884
- > TBD(all): Any objections or additions/changes?

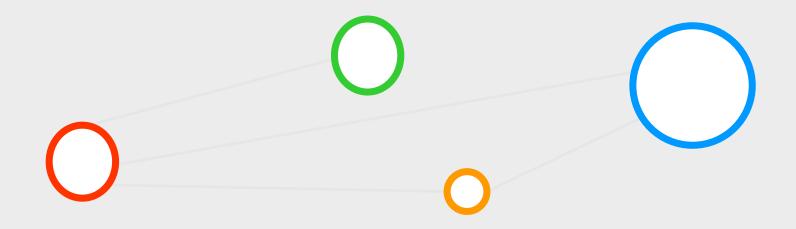
Recent starches -     Sarch or filter result     Due date      4       Recent starches -     Sarch or filter result     Due date      4       Recent starches -     Sarch or filter result     Due date      4       Recent starches -     Sarch or filter result     Due date      4       Recent starches -     Sarch or filter result     Due date      4       Recent starches -     Sarch or filter result     applied pair or       Recent starches -     Sarch or filter result     App 30, 2021     applied pair or       Recent starches -     Sarch or filter result     Sarch or filter result     Sarch or filter result       Recent starches -     Sarch or filter result     Sarch or filter result     Sarch or filter result       Recent starches -     Sarch or filter result     Sarch or filter result     Sarch or filter result       Recent starches -     Sarch or filter result     Sarch or filter result     Sarch or filter result       Recent starches -     Sarch or filter result     Sarch or filter result     Sarch or filter result       Recent starches -     Sarch or filter result     Sarch or filter result     Sarch or filter result       Recent starches -     Sarch or filter result     Sarch or filter result     Sarch or filter result       Recent starches - </th <th>srris Riedel &gt; 👼 RAISE WP2 &gt; Issues</th> <th></th>	srris Riedel > 👼 RAISE WP2 > Issues	
International (International Content on the Contection Completed (International Content on the	pen 11 Closed 10 All 21	A ▲ ✓ Edit issues New issue
*21 - control 3 munchs spo by Morris Reidell () WV2 Fad Sheet Collection Completed     Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection Completed     Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection Completed     Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection Completed     Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection Completed     Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection Completed     Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection Completed     Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection Completed     Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection Completed     Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection Completed     Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection Completed     Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection Completed     Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection Completed () Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection Completed () Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection Completed () Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection Completed () Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection Completed () Apr 10, 2021     apolitation of the spo by Morris Reidell () WV2 Fad Sheet Collection	Recent searches · Search or filter results	Due date ~ 4h
All or careful a munch so go by Morris Redell © W02 Fad Sheet Collection Completed © Apr 10, 2021     B op 10, 2021     Control And Developed Shorts Redell © W02 Fad Sheet Collection Completed © Apr 10, 2021       B - Coaler Fad Sheet Tabk 1.1 Muchanevin File     D op 12 Fad Sheet Collection Completed © Apr 10, 2021     Control And Developed Shorts Redell © W02 Fad Sheet Collection Completed © Apr 10, 2021     Control And Developed Shorts Redell © W02 Fad Sheet Collection Completed © Apr 10, 2021       B - Coaler Fad Sheet Tabk 1.1 Muchanevin File     D op 10 Fad Sheet Collection Completed © Apr 10, 2021     Control And Developed Shorts Redell © W02 Fad Sheet Collection Completed © Apr 10, 2021     Control And Developed Shorts Redell © W02 Fad Sheet Collection Completed © Apr 10, 2021     Control And Developed Shorts Redell © W02 Fad Sheet Collection Completed © Apr 10, 2021     Control And Developed Shorts Redell © W02 Fad Sheet Collection Completed © Apr 10, 2021     Control And Developed Shorts Redell © W02 Fad Sheet Collection Completed © Apr 10, 2021     Control And Developed Shorts Redell © W02 Fad Sheet Collection Completed © Apr 10, 2021     Control And Developed Shorts Redell © W02 Fad Sheet Collection Completed © Apr 10, 2021     Control And Developed Shorts Redell © W02 Fad Sheet Collection Completed © Apr 10, 2021     Control And Developed Shorts Redell © W02 Fad Sheet Collection Completed © Apr 10, 2021     Control And Developed Shorts Redell © W02 Fad Sheet Collection Completed © Apr 10, 2021     Control And Developed Shorts Redell © W02 Fad Sheet Collection Completed © Apr 10, 2021     Control And Developed Shorts Redell © W02 Fad Sheet Collection Completed © Apr 10, 2021       B - Control Kont Developed Shorts Redell © W02 Fad Sheet Collection Completed ©		updated just now
#1: created 1 month ago by Morris Redel © W12 Last Sheet Collection Completed © Agr 10, 2021     updated junt row       = Creater Last Sheet Task 3.1 Meddeent Flow     updated 1 months ago by Morris Redel © W12 Last Sheet Collection Completed © Agr 10, 2021     updated 1 months ago by Morris Redel © W12 Last Sheet Collection Completed © Agr 10, 2021       = Creater Last Sheet Task 3.1 Meddeent Flow     ************************************		🚯 🗖 2 updated just now
117 - Greater II month ago by Morris Riedel © W127 Last Sheet Collection Completed 🖨 Apr 10, 2021 update II month ago by Morris Riedel © W127 Last Sheet Collection Completed 🖨 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 🖨 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 🖨 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 🖨 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 🖨 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 🖨 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 🖨 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 🖨 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 🖨 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 🖨 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 🖨 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 🖨 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 🖨 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 👌 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 👌 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 👌 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 👌 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 👌 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed 👌 Apr 10, 2021 cpdate II month ago by Morris Riedel © W127 Last Sheet Collection Completed II month ago by Morris Riedel © W127 Last Sheet Collection Completed II month ago by Morris Riedel © W127 Last Sheet Collec		😰 🛱 3 updated just now
<ul> <li>rits-orsted 1 month age by Morris Riedel © WP2 Fast Sheet Collection Completed @ Apr 10, 2021</li> <li>updated 2 werks age</li> <li>Creater Fast Sheet Task 12 Cass Instrugy</li> <li>- Creater Fast Sheet Task 12 Cass Instruggy</li> <li>- Creater Fast Sheet Tas</li></ul>		updated 16 minutes ago
#1- create1 nomin ago to Morris Redel © WH2 Fast Sheet Collection Completed 🖨 Apr 10, 2021     update1 15 minks rag       # - Center Fast Sheet Table 13 Coaling # - Center Fast Sheet Table 13 Coaling # - Center Fast Sheet Table 13 Coaling # - Center Fast Sheet Table 13 Morris Redel © WH2 Fast Sheet Collection Completed 🖨 Apr 10, 2021     update 24 min # - Center Fast Sheet Table 13 Morris Redel © WH2 Fast Sheet Collection Completed # - Center Fast Sheet Table 13 Morris Redel © WH2 Fast Sheet Collection Completed # - Center Fast Sheet Table 13 Morris Redel © WH2 Fast Sheet Collection Completed # - Center W1 Depending Table 24 Morris Redel © WH2 Morris Redel © WH2 Fast Sheet Completed # Apr 10, 2021     update 11 min # - Center W1 Depending Table 24 Morris Redel © WH2 Morris Redel © Center WH2 Depending Morris Redel © WH2 Morris Redel © WH2 Morris Redel © Center WH2 Depending Morris Redel © WH2 Morris Redel © WH2 Morris Redel © Center WH2 Depending Morris Redel © WH2 Morris Redel © WH2 Morris Redel © Center WH2 Depending Morris Redel © WH2 Morris Redel © Center WH2 Depending Mo		updated 2 weeks ago
11 - cruzed 1 mom kap by Morris Red U (2017) Zrad Hark Collection Completed (2017) Anno 2017     updated junt con       a - Used Doodle for WF2 Monthly Meeting April 2010 Late A Time     updated 1 montes april 2010 Late A Time       b - Osed Lot Show Time Time Down A Table A Time     updated 1 montes april 2010 Late A Time       b - Osed Lot Show Time Down A Table A Collection Completed (2017) (2017)     updated 1 montes april 2010 Late A Time       b - Osed Lot Show Time Down A Table A Collection Completed (2017) (2017)     updated 1 montes april 2011 (2017) (2017)       b - Osed Lot Show Time Time Time Down A Table A Collection Completed (2017) (2017)     updated 1 minutes april 2011 (2017) (		updated 15 minutes ago
112: created 1 month ago by Morris Riedel © W82 Monthly Meeting - April 2021 @ Apr 30, 2021 updated 14 minutes ago 8: Oreater fact Steet Task 3.1 Secting Hows 8 Task 3.4 Gripter Delign 11: created 1 minutes ago by Morris Riedel © W82 Monthly Meeting - April 2021 @ Apr 30, 2021           9: Used Double for W82 Monthly Meeting Meeting - April 2021 @ Apr 30, 2021         updated 12 minutes ago 9: Used Double for W82 Monthly Meeting Meeting - May 2021 @ Apr 30, 2021         updated 12 minutes ago 9: Dead Double for W82 Monthly Meeting Meeting - May 2021 @ Apr 30, 2021         updated 12 minutes ago 9: Dead Double for W82 Monthly Meeting Meeting - May 2021 @ Apr 31, 2021         updated 11 minutes ago 9: Dead W82 Meeting Meeting Meeting Meeting - May 2021 @ Apr 31, 2021           0: Create W82 Dependentiation for W82 Meeting - May 2021 @ Apr 31, 2021         Updated 11 minutes ago 9: Other Double for W82 Meeting Meeting Meeting - May 2021 @ Apr 31, 2021         Updated 11 minutes ago 9: Other Double for W82 Meeting Meeting Meeting - May 2021 @ Apr 31, 2021		پ 🕲 🖏 updated just now
#11 - created 1 month ago by Morris Redel © WP2 Fact Sheet Collection Completed 🖨 Apr 30, 2021 updated 12 minutes ago & - Used Doods for VW2 Monthly Meeting May 2010 Data ta Time #19 - created 11 minutes ago by Morris Redel © WP2 Monthly Meeting - May 2021 🗍 May 31, 2021 @ Doods for VW2 Monthly Meeting May 2020 Data ta Time & - Created VE Department and the Complexity of the Comple		updated 14 minutes ago
#19 - created 11 minutes ago by Morris Redel O WP2 Monthly Meeting - May 2021 D May 31, 2021 updated 11 minutes age 8 - Create WP2 Expertise Matrix Draft and Circulate for WP2 Review		ng 🛱 4 updated 12 minutes ago
		😦 🕞 이 updated 11 minutes ago
		n updated 15 minutes ago

*	2	M.Riedel	2022-02-28 11:10	
*	2	M.Riedel	2022-03-30 09:41	
*	2	Katrine	2022-04-29 10:23	
*	2	M.Riedel	2022-05-31 11:23	
*	2	Katrine	2022-06-27 13:03	
*	2	M.Riedel	2022-07-28 14:51	
*	2	M.Riedel	2022-08-03 09:49	
				_
*	439 K	M.Riedel	→ 2022-08-03 09:49	<b>4</b>
×	31.3 M	M.Riedel	2022-08-03 09:49	
	* * * *		Image: Constraint of the second of the se	*       2       M.Riedel       2022-03-30 09:41         *       2       Katrine       2022-04-29 10:23         *       2       M.Riedel       2022-05-31 11:23         *       2       M.Riedel       2022-06-27 13:03         *       2       M.Riedel       2022-07-28 14:51         *       2       M.Riedel       2022-08-03 09:49         *       439 K       M.Riedel       * 2022-08-03 09:49



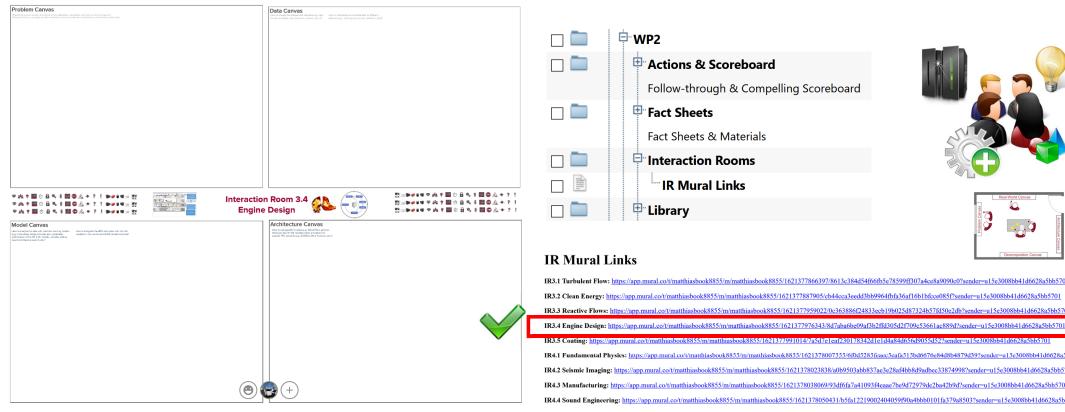


## Agenda Item (2) – Review WP2 Status on Interaction Rooms RASE





## **Interaction Rooms via MURAL Boards & Milestone Inputs**

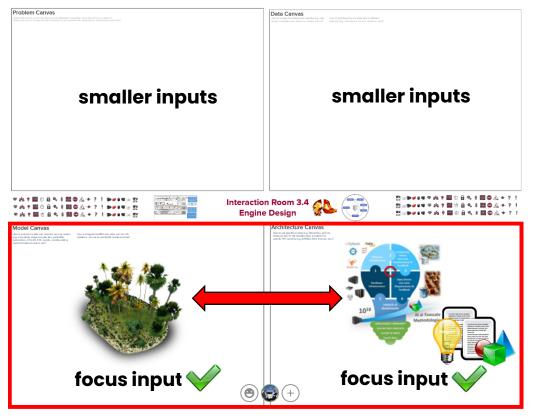


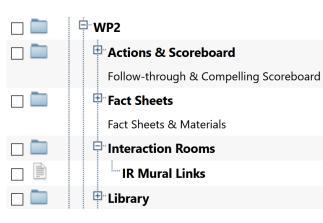
> 2nd Iteration with all teams completed – Strategy for Task 3.4 has been discussed!
 > https://bscw.zam.kfa-juelich.de/bscw/bscw.cgi/3591551



# RASE

#### **MURAL Board contents for Deliverables & Milestones**







#### IR Mural Links

 IR3.1 Turbulent Flow: https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621377866397/8613c384d54f66fb5c78599ff307a4ce8a9090c0?sender=u15e3008bb41d6628a5bb5701

 IR3.2 Clean Energy: https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621377867905/cb44cca3eedd3bb9964fbfa36af16b1bfce085f7sender=u15e3008bb41d6628a5bb5701

 IR3.3 Reactive Flows: https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/162137795022/0c363886f24833eeb19b025d87324b57fd50e2db?sender=u15e3008bb41d6628a5bb5701

 IR3.4 Engine Design: https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/16213779976343/8d7aba6be09af3b2ffd305d2f709c53661ac889d?sender=u15e3008bb41d6628a5bb5701

 IR3.5 Coating: https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621377991014/7a5d7e1eaf230178342d1e1d4a84d656d9055d52?sender=u15e3008bb41d6628a5bb5701

 IR4.1 Fundamental Physics: https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621378007555/6f0d5285feac5eafa515bd676e84d8b4879d397sender=u15e3008bb41d6628a5bb5701

 IR4.2 Seismic Imaging: https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621378023838/a0b9503abb837ae3e28af4bb8/9adbec338749987sender=u15e3008bb41d6628a5bb5701

 IR4.3 Manufacturing: https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621378038069/93df6fa7a41093f4eaac7be9d72979de2ba42b9d?sender=u15e3008bb41d6628a5bb5701

 IR4.4 Sound Engineering: https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/162137805431/b5fa1221900240405990a4bb0101fa379a8503?sender=u15e3008bb41d6628a5bb5701

#### Interaction Room Status & Discussions – WP3/WP4 Overview

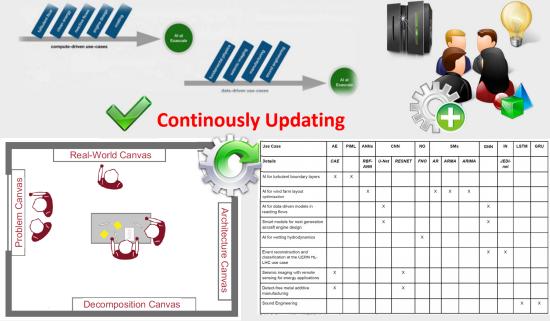


#### > WP3 (third round IRs)

- > T3.1: Turbulent Flow  $\rightarrow$  after review
- > T3.2: Clean Energy  $\rightarrow$  after review
- > T3.3: Reactive Flows  $\rightarrow$  after review
- > T3.4: Engine design  $\rightarrow$  after review
- > T3.5: Coating  $\rightarrow$  after review

#### > WP4 (third round IRs)

- > T4.1: Fundamental physics  $\rightarrow$  after review
- > T4.2: Seismic imaging  $\rightarrow$  after review
- > T4.3: Manufacturing  $\rightarrow$  after review
- > T4.4: Sound engineering  $\rightarrow$  after review
- $\succ$  3rd iteration of Interaction Rooms  $\rightarrow$  schedule  $\checkmark$

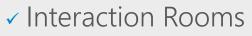


- Next round Interaction Rooms after Review
  - Carve out more details on AI/HPC methods
  - Contribute to the Unique AI Framework
  - > Update our HPC/AI Methods Matrix

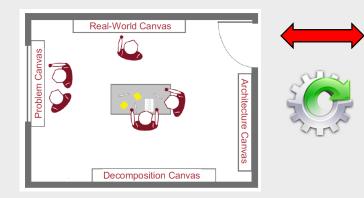


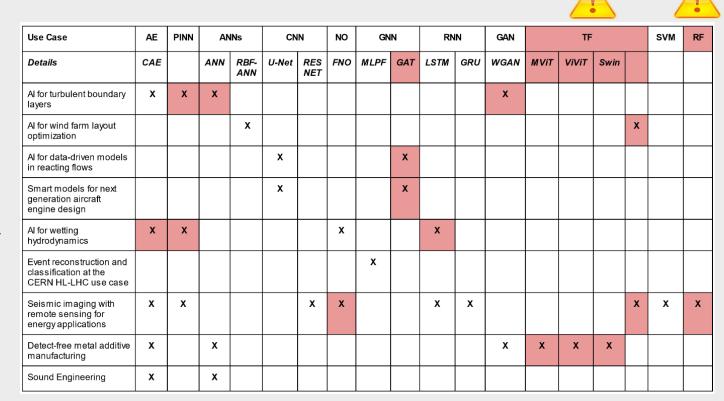
#### Cross HPC/AI Methods Table – IR Results (D2.10)

Input to Deliverable D2.10

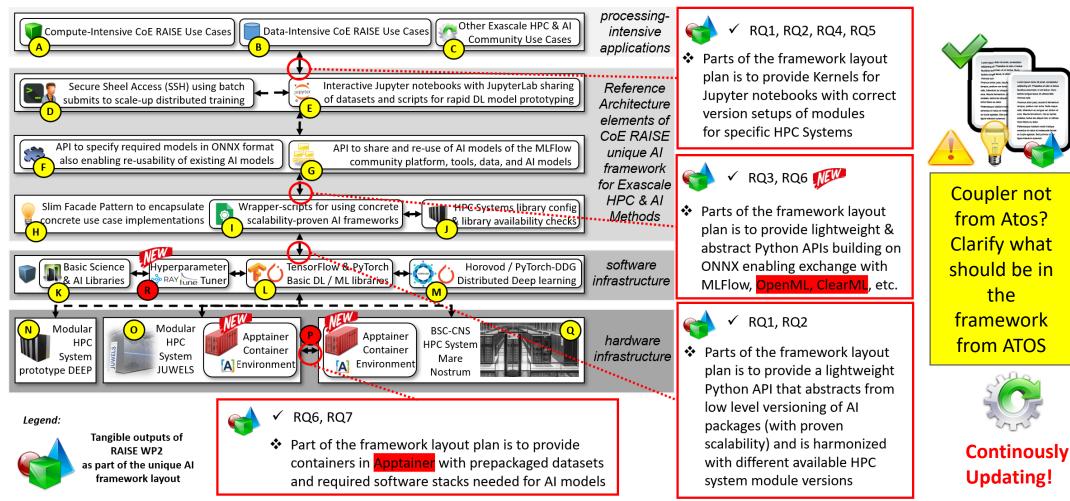


- ✓ Update of Matrix
- Components relatively constant & common
- Methods change & new methods added (e.g., Transformers, RFs)





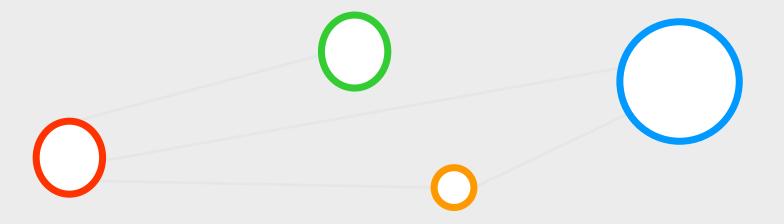




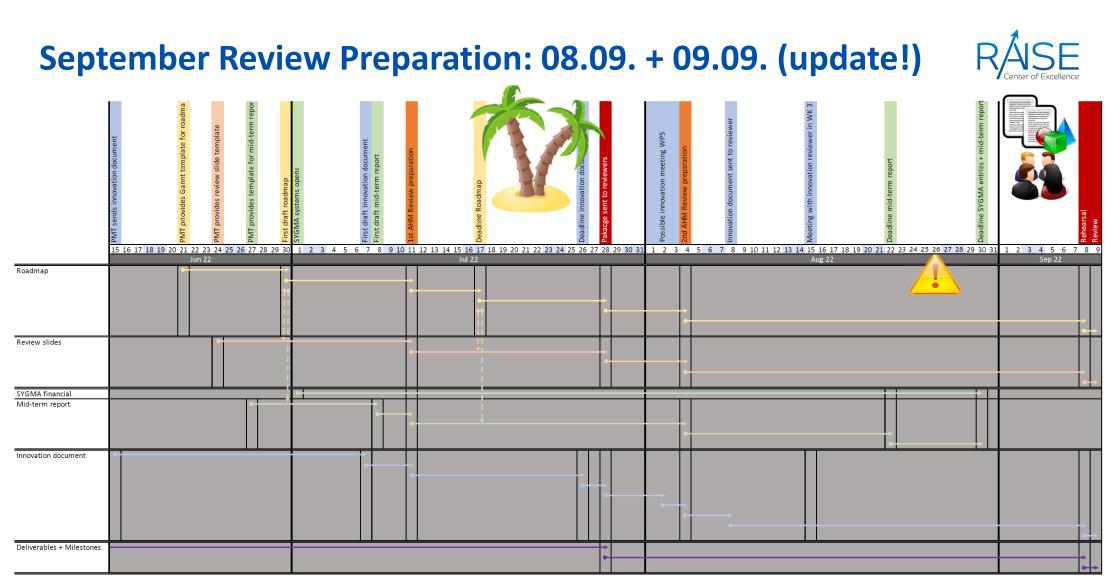
## **Realization of SW Framework – IR Results (see D2.10)**

\*\*\* \* \* \* \*

## Agenda Item (3) – September Review Preparation (M21) RÁSE









#### **September Review Preparation: WP2 Activities**

- 1. Roadmap Document  $\rightarrow$  Done
  - Interesting Impact part (see WP2 slideset)
- 2. Innovation Radar  $\rightarrow$  Done
  - > Unclear if questions in review or meeting before
- 3. WP2 Slides  $\rightarrow$  Work in Progress
  - 1. Input from WP2 Task Leaders (2.1 missing only)
  - 2. Initial feedback from RAISE WP Leader Meeting (2022-08-25)
  - 3. Feedback from WP2 folks now



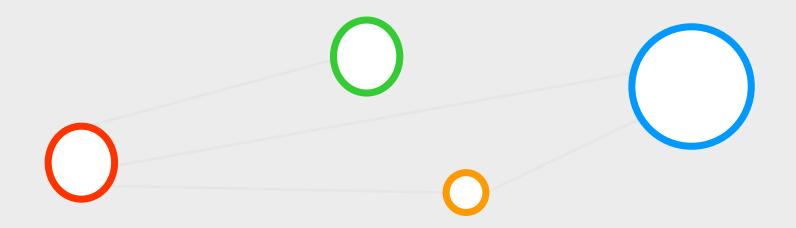






### Agenda Item (4) – New Task 2.3 – Quantum Computing







### New Task 2.3 – Quantum Computing – Initial Results

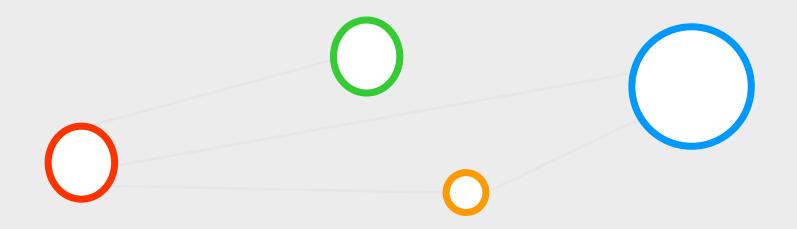


Slides Marcel (~10 Min)



#### Agenda Item (5) – Status WP2 Training Plans







#### Monthly WP2 Trainings

- Co-organized with Icelandic National Competence Center (NCC) funded by the EuroCC project: <u>http://ihpc.is</u>
- > Performed since Quarter 2 of the project (April 2021)
- > Selected dates via agreement of availability of speakers
- > Used as major AI/HPC methods information/training for WP3/WP4
- Contributed to outreach via YouTube Channel recordings: <u>https://www.youtube.com/channel/UCAdIZ-v6cWwGdapwYxdN7dg</u>
- > TBD(Katrín): Schedule the YouTube Training series with speakers & Update Training Plan

#### **Plan for next months**

- Carry on with monthly WP2 trainings in the same style, but schedule on 3-4 month horizons
- Repeat certain trainings with advanced content and updates of activities
- Work better together with WP6 on releasing seminars on YouTube channel more regularly
- Collect slides of speakers and make them available on BSCW and/or on the RAISE Web Page





















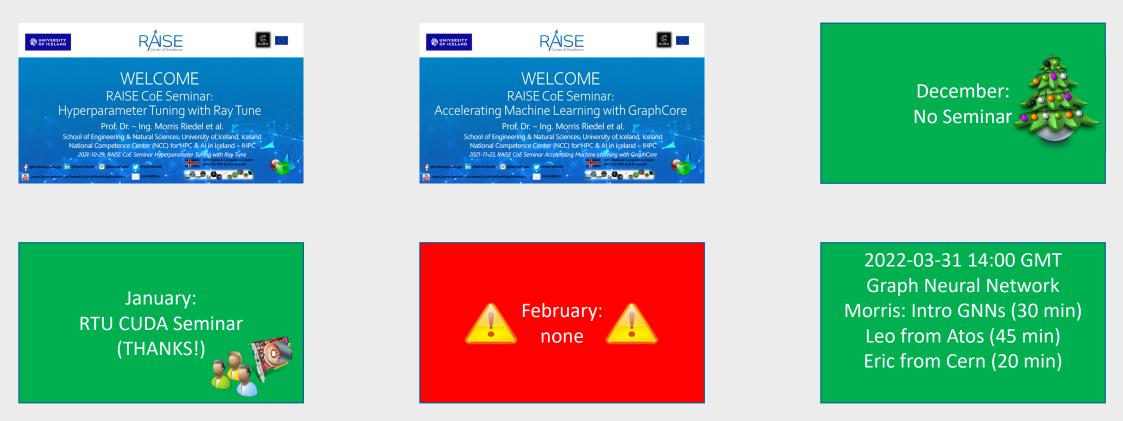








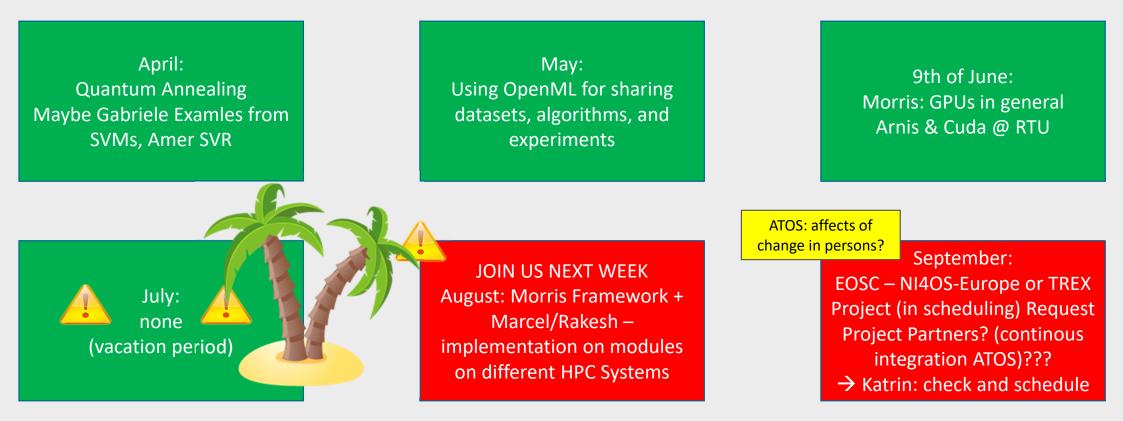




TBD (all): Please suggest further training & teaching seminars for YouTube channel on our WP2 mailing list to plan better ahead







TBD (all): Please suggest further training & teaching seminars for YouTube channel on our WP2 mailing list to plan better ahead





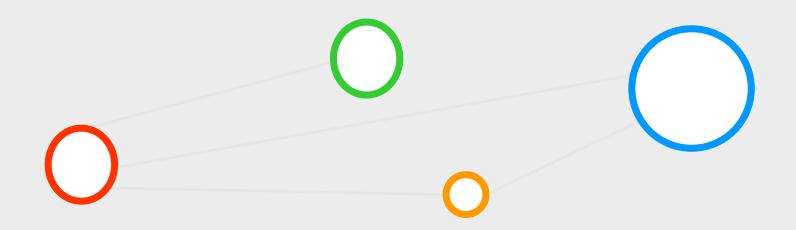


TBD (all): Please suggest further training & teaching seminars for YouTube channel on our WP2 mailing list to plan better ahead



## Agenda Item (6) – Compelling Scoreboard Review

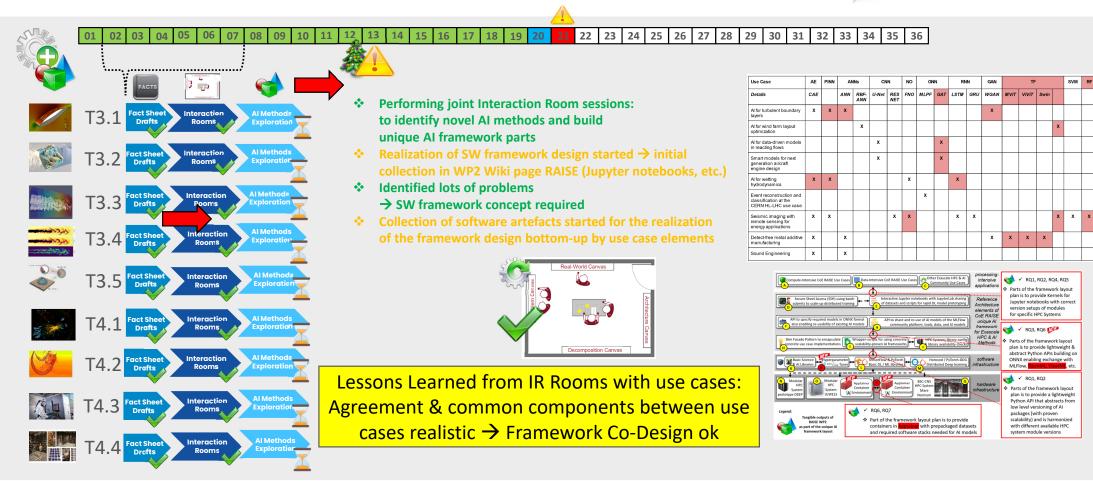






#### **Compelling Scoreboard Review – Use Case Progress**

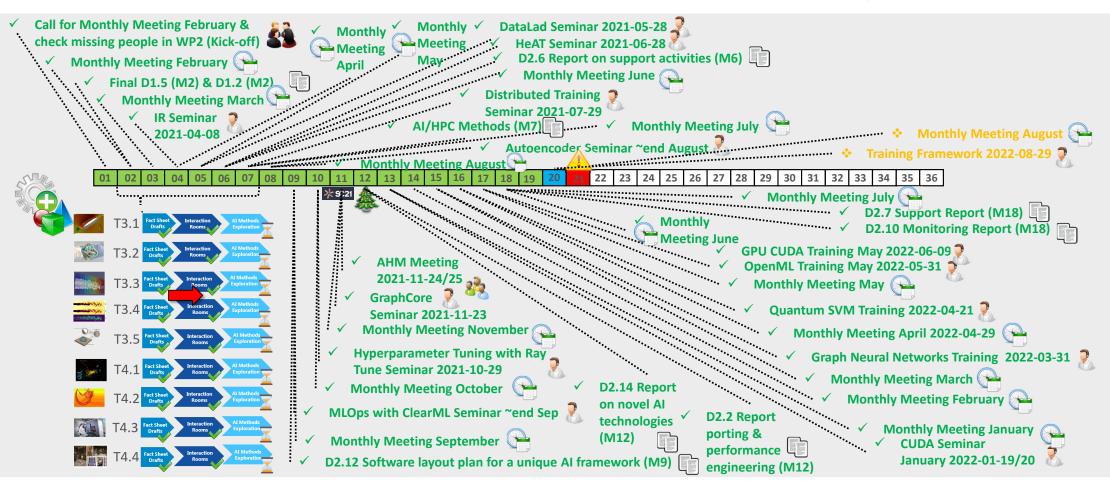






#### **Compelling Scoreboard Review & Next Steps**







#### Agenda Item (6) – Next Steps & Follow-Through

- > 08.09 09.09.2022 (Review Preparations start)
  - > WP2 Slideset revision in progress

#### Task 2.1

- > LUMI (get access via UICE), Puhuri access
- > Mare Nostrum (machine end of the year)
- Contact identified for BSC:
- > BSC Backup Contact: Cristóbal Samaniego
- > Ahti Saar Ahti.Saar@ut.ee was the go-to person to create the access for Iceland LUMI project leaders (i.e. those that can create projects and grant access to users in Iceland etc).
- > (Ebba did contact him back in October 2021 to create such an access for Hannes and Henning)
- > We need a small justification why access is needed for CoE RAISE
- > Q: What exactly will be ported, a short description would be good (3 Lines)





# drive. enable. innovate.





The CoE RAISE project have received funding from the European Union's Horizon 2020 – Research and Innovation Framework Programme H2020-INFRAEDI-2019-1 under grant agreement no. 951733

Follow us: 🈏 in 🖪 🕩 👀  $R^G$