



EXDCI Survey Feedback  
and  
Highlights on SME/Startups and Future Events

François Bodin  
&

Mark Asch, George Beckett, Thierry Bidot, Maïke Gilliot, Jean-Philippe Nomine

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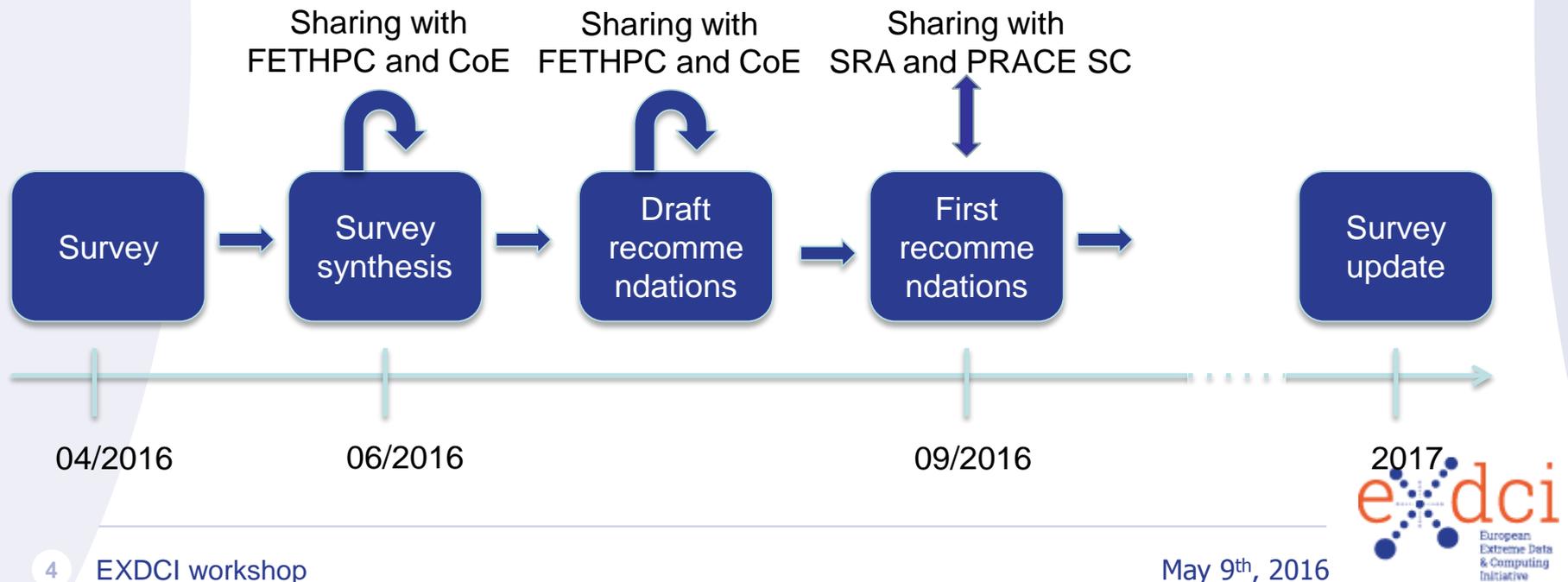
- Improve overall vision
  - Build a dynamic global vision of the HPC ecosystem
  - Understand present/future trends and needs
  - Provide recommendations
  - Contribute to the elaboration of future EC calls
- Improve ecosystem information sharing and monitoring
  - Surveys as one of the tools to build an holistic vision
  - Common events
  - Promotion of HPC (e.g. career cases)

*THANK YOU very much for your contributions!*

1. EXDCI Survey Feedback
2. EXDCI Focus on Startups and SMEs
3. EXDCI at ISC 2016 and SC16
4. EXDCI and FEAT

# EXDCI Survey Feedback (work in progress)

- Questionnaire at <https://exdci.eu/activities/questionnaire-coe-fet-hpc>
- Webinar questionnaire presentation at <https://www.youtube.com/watch?v=blRvrwhZ0ng>
- Answers
  - 7 CoE on a total of 8 (+1)
  - 20 (+some pending) FET projects on a total of 27



# EXDCI Survey 1- Research Agendas and Roadmapping (1/3)

- **Q: ... your project will contribute to the technology developments covered by the ETP4HPC SRA**
  - Large thematic coverage: I/O, accelerators, algorithms, programming environments, mini-applications, ...
  - Many opportunities for sharing experiences / technologies
  - Show a very strong scientific and technical landscape
- **Q: Do you see any missing issues in the ETP4HPC SRA, ...**
  - SRA coverage appears to be quite complete
  - Some topics should receive more attention (on the software side mainly)
- **Q: What is your view on Exascale transversal issues such as fault tolerance, energy and data management?**
  - Addressed by a majority of projects / CoEs
  - Fault-tolerance may be too neglected
  - Big data and big compute interest growing

- **Q: Does the word “co-design” mean something in your context and if yes, what is the definition you are using?**
  - Many project are using a co-design approach but definition is not always the same
  - Co-design is mostly defined according to projects / CoEs coverage of design space / interacting surfaces
  - Some don't consider it as an appropriate approach
- **Q: What disruptive technologies or practices are you considering in your project / CoE? In what sense do you believe your technologies or practices are disruptive?**
  - Many projects / CoEs perceive their scientific/technical proposals as disruptive (e.g. task based parallelization)

# EXDCI Survey 1- Research Agendas and Roadmapping (3/3)

- **Q: If you are planning to release software or hardware prototypes, would you be interested in the help of PRACE to make them available to the community?**
  - Many software/hardware will be produced and would like some help to reach users community
  - For some projects TRL will be too low to reach users
  - Open source has been frequently chosen
- **Q: Are there partners within your project interested in participating in one of the EsD projects?**
  - Many partners are interested to contribute / be part of an EsD

# EXDCI Survey 2- Training and talent generation (1/1)

- About 70% of the projects / CoE are planning to provide new training material
  - Availability via the project web site, not so many MOOC and e-learning approach mentioned
  - Potentially useful to other projects and CoE in the majority of the cases
- Many potential demand for training provided by external organizations
  - Parallel programming (e.g. PGAS) and code optimizations (e.g. specialized architectures) in high demand
  - PRACE PATC frequently mentioned
- Some projects might be interested in externalizing training on their results



- **Statistics**

- 48% of the projects have already initiated international collaborations
- 65% consider that they contribute to BDEC convergence principles
- 74% are interested in attending BDEC workshops

- **BDEC**

- <http://www.exascale.org/bdec/>
- [http://www.isc-hpc.com/isc16\\_ap/sessiondetails.htm?t=session&o=389&a=select](http://www.isc-hpc.com/isc16_ap/sessiondetails.htm?t=session&o=389&a=select)



- **Main observations**

- Convergence of Big Data analytics and Exascale Computing is a major subject of actual European research in the FET-HPC framework
- World wide partnerships have been established – eg. with computing centres, standards organizations, industry
- Areas of collaboration cover: complete software stack (compilers, runtime, libraries, applications), post-Moore technologies, APIs, I/O and storage
- International partners are academics, industrials, software developers, standards organizations, HPC centres
- Tools needed for better developing international collaboration include joint workshops, online communities, web-based dissemination, international roadmaps, working groups on interoperability, exchange programmes

# EXDCI Survey 4- Impact assessment – innovation, technology transfer

- **Q:** What KPI would measure best the influence of your project ?
  - Uptake of industry/academia/HPC systems/applications ; # of downloads/# of users; gain w.r.t traditional approach
- **Q:** Have you already detected technologies from your project with potential for technology transfer ?
  - 5 potential technologies identified, too early to decide for most
- **Q:** Which actions are planned by your project / in your ecosystem in order to support the emerging technologies
  - Some, but very little – not their “role” ? missing knowledge of ecosystem?
- **Q:** Are actions planned in your project (or with partners) in order to emphasize the SMEs of your project ?
  - Some, but not many – same comment as above ?

# EXDCI Focus on Startups and SMEs (1/2)

## First steps:

1. Understanding ecosystem w.r.t SME/Startups/Innovation
  - **With Eurolab4HPC** : exchange of interview guidelines, “VC Advisory Board”, researchers’ perception of entrepreneurship
  - **With other actors**: Fortissimo, Tetracom-Project, SME WG of ETP4HPC
2. Understanding HPC particularities and difficulties
  - **Joint elaboration of a 2-pager**
    - With contributions from SMEs -> Thank you !
    - Presented to the Technical Board and shared with the SME WG of ETP4HPC
  - **First suggestions form the interviewees on how to alleviate those difficulties** Work in progress ! Shared with TechBoard and SME WG
3. Gather input from the CoE and FETHPC projects (via survey)



EUROLAB-4-HPC



FORTISSIMO

sesame<sup>net</sup>



## Ongoing

- In depth analysis of survey
- Synch efforts with ETP4HPC (WG on SMEs), sesame.net,
  - F2f Tomorrow afternoon
- Interviews with SMEs / startup projects
  - Tuesday/ Wednesday, at ISC, by phone
  - Selection based on recommendations by the FETHPC / CoE projects, Eurolab4HPC, ETP4HPC-Members

## Next steps

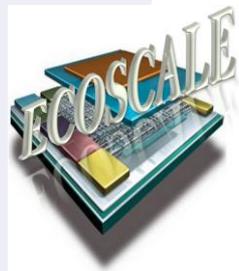
- Report on Startups (due 08/16)
- Technical Workshop (09/16)
  - Provide input based on results of interviews and discussions

# EXDCI at ISC 2016 and SC16 (1/1)

- We will propose an overview of all projects and CoE → we will need your inputs



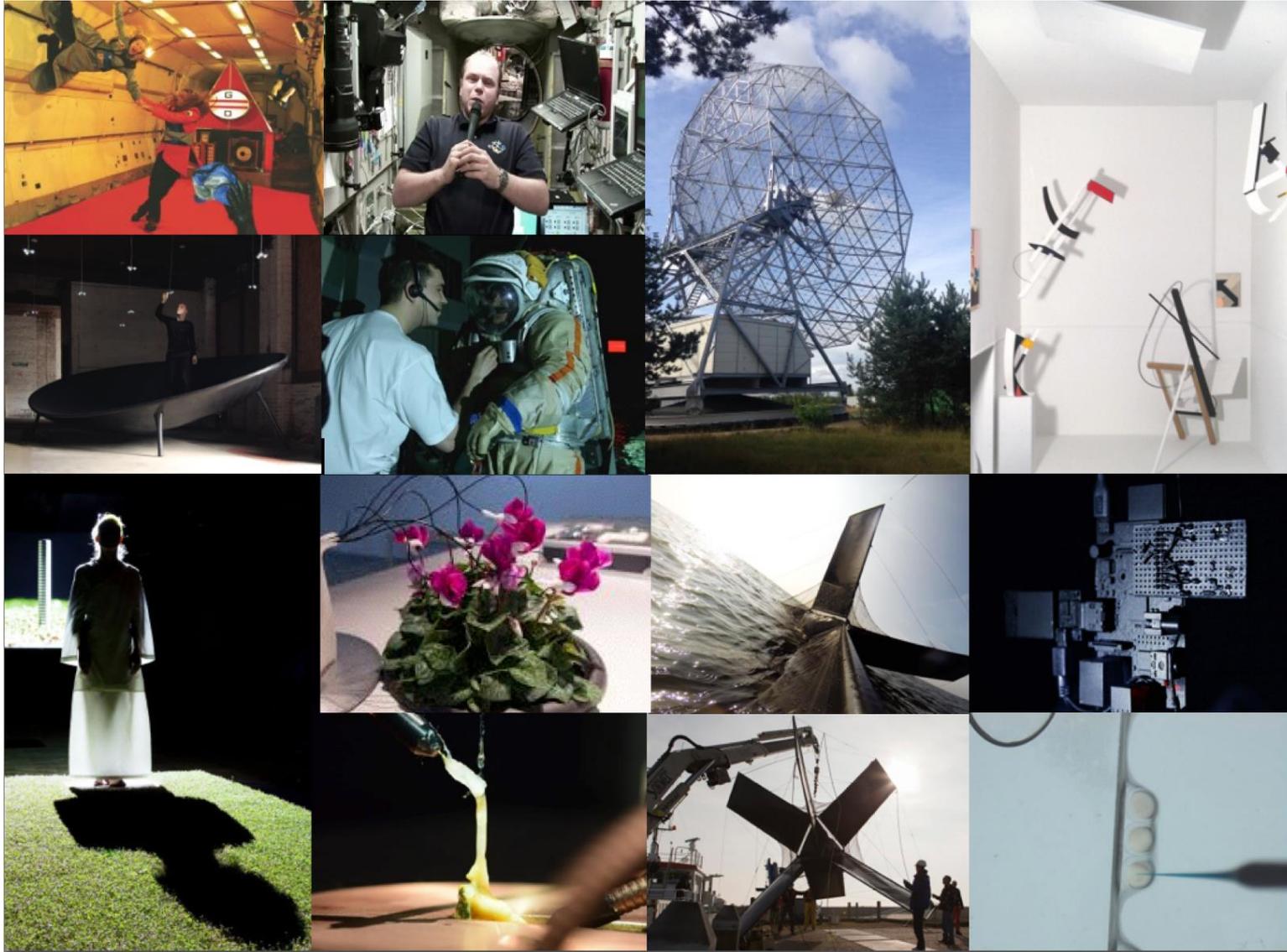
- EC H2020 project to bring together artists and FET project teams to create high-impact artwork, exhibitions, media campaigns, ...
- FEAT funds 6 artist-in-residence appointments, each with €17k
- With support from EXDCI, George Beckett (Edinburgh) formed consortium of 5 FET-HPC projects to submit proposal for Exascale computing
- Successfully secured residence with two arts at WAG workshop in March, (plus MANGO joined team)



# EXDCI and FEAT (2/3)

## Špela Petric and Miha Tursič

I a-life I artistic  
entities I bioart I  
biomedia I  
cosmification of  
art I human I  
inter-cognition I  
non-human I  
non-  
representational  
I plants I  
posthuman I  
postgravity art I  
phytoterratology  
I science  
culturalisation I  
space  
culturalisation I  
subjectivity I  
terrabiology I  
xenofeminism



# EXDCI and FEAT (3/3)

## Exascale Artists-in-Residence

- Špela Petric and Miha Tursič working with FET-HPC projects
- Project is in planning phase and will start July 2016
  - Various residence visits planned, plus
  - FEAT workshop in Vienna on 28<sup>th</sup>—29<sup>th</sup> June
  - FEAT workshop ([Ars Electronica festival](#)) in Linz on 3<sup>rd</sup>—7<sup>th</sup> September
- Aiming for first exhibition of work in 2017Q1
  - Venue to be confirmed
- Artist links

[postgravity.eu](http://postgravity.eu)

[ksevt.eu](http://ksevt.eu)

[spelapetric.org](http://spelapetric.org)

[www.feartart.eu](http://www.feartart.eu)

# Conclusion

- The survey shows a rich and very active ecosystem
  - But also a risk of lack of capitalization
  - Next steps need to be anticipated well before projects are completed
    - Many projects proposes disruptive approaches, how to address adoption?
  - SMEs/Startups activities still low?
- EsD and PRACE perceive as two very important instruments
  - Critical for technology adoptions / validations
  - The “how” is still to be specified
- Next steps:
  - Full survey feedback to share/consolidate with you in the next weeks
  - SMEs and startups collaboration (ETP4HPC, EuroLab4HPC, etc.)
  - Contributions to the elaboration of a new set of recommendations
  - BDEC / ISC16