



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

François Bodin
&

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

Mai 9th, 2016



- 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)

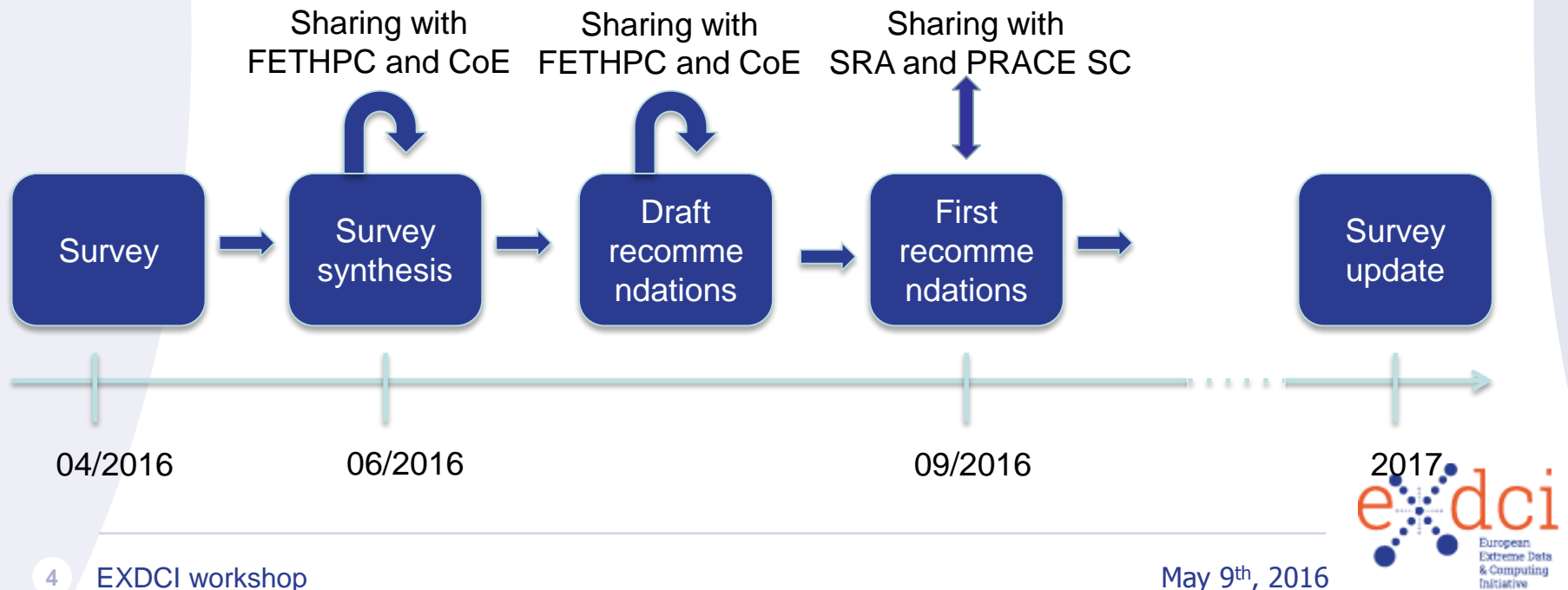
THANK YOU very much for your contributions!

Table of contents

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

EXDCI Survey 1- Research Agendas and Roadmapping (2/3)

- **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



- **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**net**



Ongoing

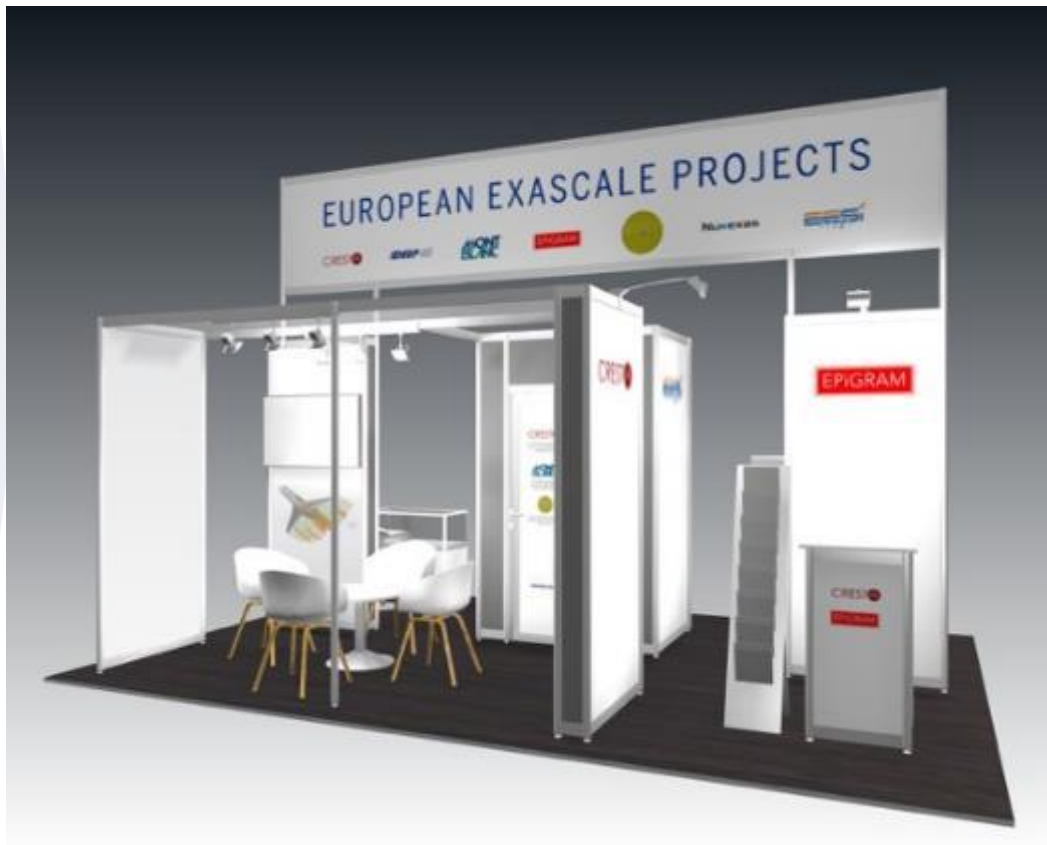
- In depth analysis of survey
- Synch efforts with ETP4HPC (WG on SMEs), sesame.net,
 - F2f Tomorrow afternoon
- Interviews with SMEs / startup projects
 - Tuesday/ Wednesday, at ISC, by phone
 - Selection based on recommendations by the FETHPC / CoE projects, Eurolab4HPC, ETP4HPC-Members

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



EXDCI and FEAT (1/3)

Future Emerging Art and Technology

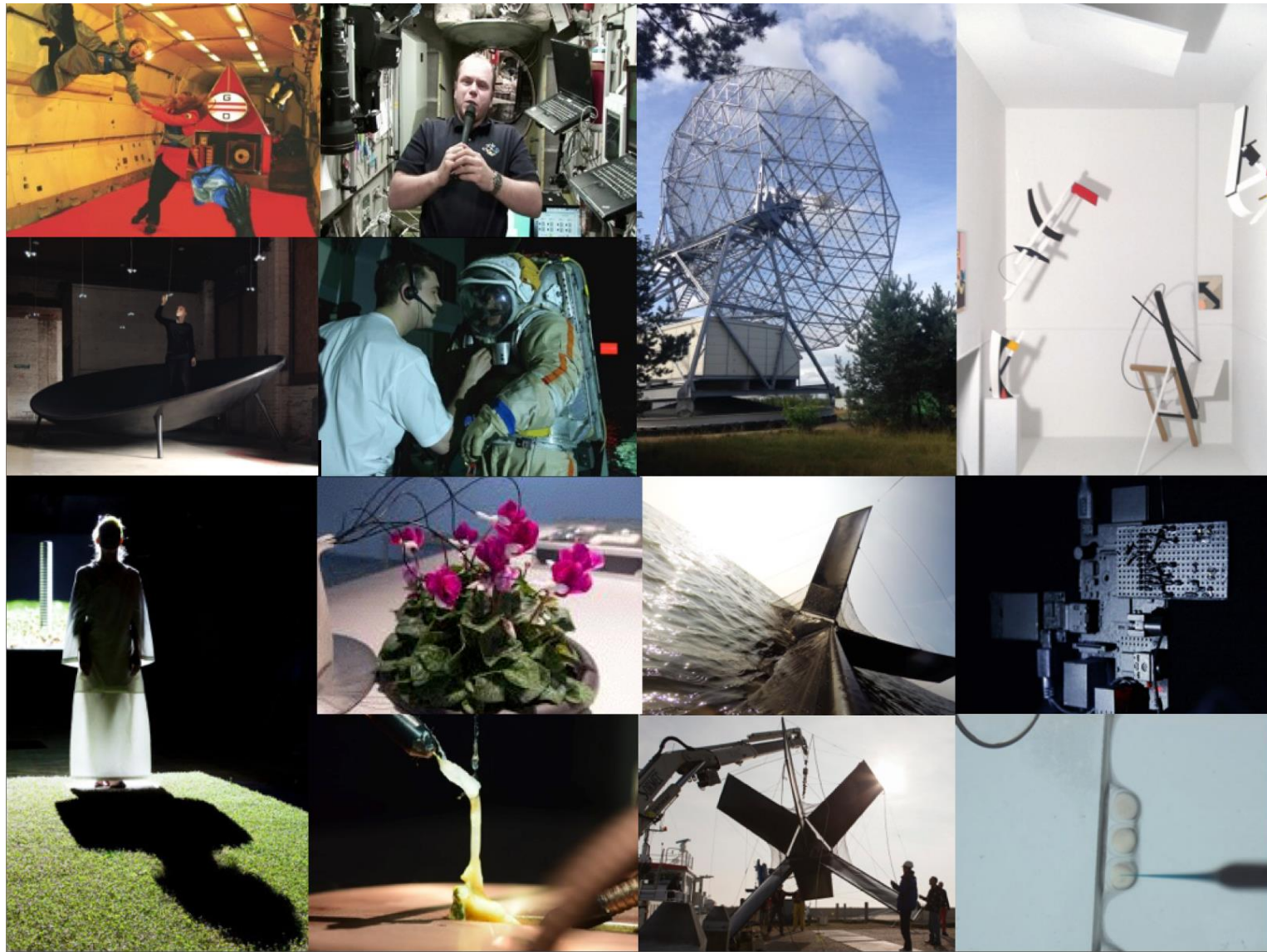
- EC H2020 project to bring together artists and FET project teams to create high-impact artwork, exhibitions, media campaigns, ...
- FEAT funds 6 artist-in-residence appointments, each with €17k
- With support from EXDCI, George Beckett (Edinburgh) formed consortium of 5 FET-HPC projects to submit proposal 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 28th—29th June
 - FEAT workshop ([Ars Electronica festival](#)) in Linz on 3rd—7th September
- Aiming for first exhibition of work in 2017Q1
 - Venue to be confirmed
- Artist links

postgravity.eu

ksevt.eu

spelapetric.org

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