

The *challenges* of managing resources during a large-scale upgrade

J. Susini, P. Duru and A. Götz
on behalf of many, many colleagues



The *challenges* of managing resources during a large-scale upgrade

(in terms of scientific instrumentation)

*in the midst of
a fully-operational facility*

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ESRF is a European research infrastructure



- 19 Members and Associate Countries
- Budget voted on a yearly basis
- ~ 80 M€ Annual Budget
(55% Personnel, 25% Operation, 20% Investment)
- Of which
 - ~ 1.5 M€ Industrial Income
 - ~ 3.0 M€ Research Grants
- ~ 600 staff
- ~ 40 Beamlines (instrumental stations)

ESRF is a user-driven Research Infrastructure



- 30 Public Beamlines
- ~ 2000 Proposals each year
- ~ 6300 User Visits each year
- ~ 1500 Experimental Sessions
- ~ 1600 Refereed Scientific Publications

~ 18000 papers since 1994 - 1/3 with ESRF Authors

ESRF is a mature Research Infrastructure



- 1988 - ESRF Convention
- 1989 - Planning and construction starts
- 1992 - first X-rays
- 1994 - Inauguration (100 mA operation)
- 1995 - 200 mA operation
- 1995 / 99 - Completion of 30 beamlines
- 1999 / Today - Full operation
- 2008 / Today - Upgrade Programme

*Vision for 2009 to 2018
mapped out in Purple Book*



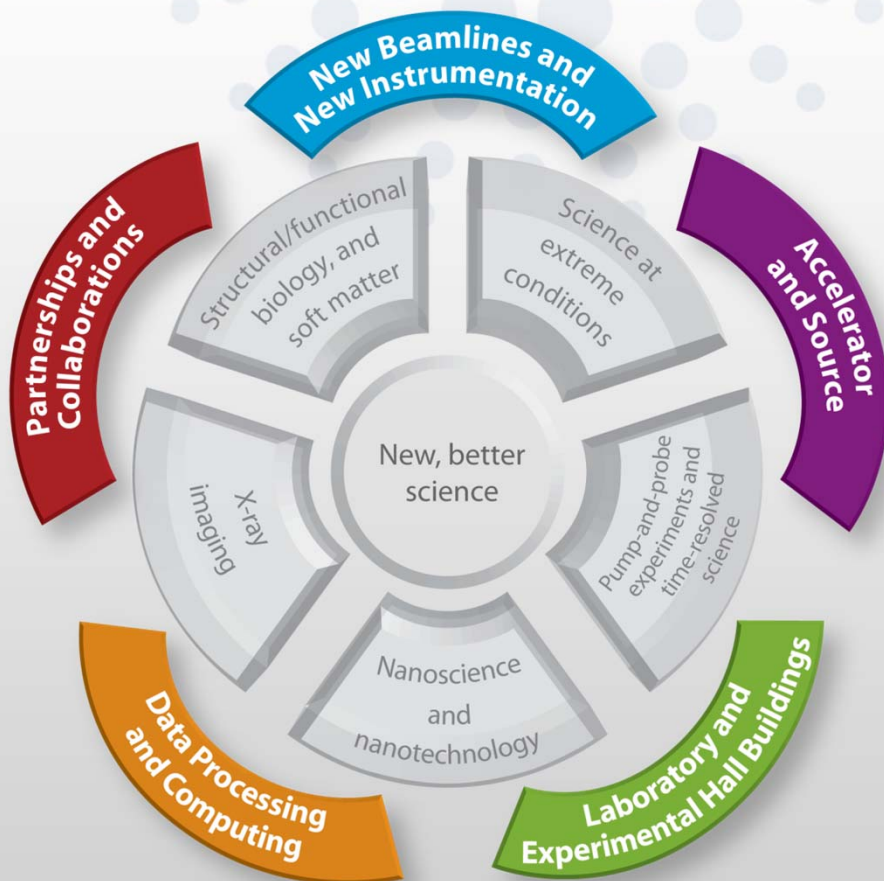
Phase I
2009-2015

<http://www.esrf.eu/AboutUs/Upgrade>



<http://www.esrf.eu/AboutUs/Upgrade>

Renew Beamline Portfolio
(11 new beamlines + 2 moving beamlines)



Accelerator Upgrade

- *IDs,*
- *straight sections,*
- *orbit correction system,*
- *RF...*

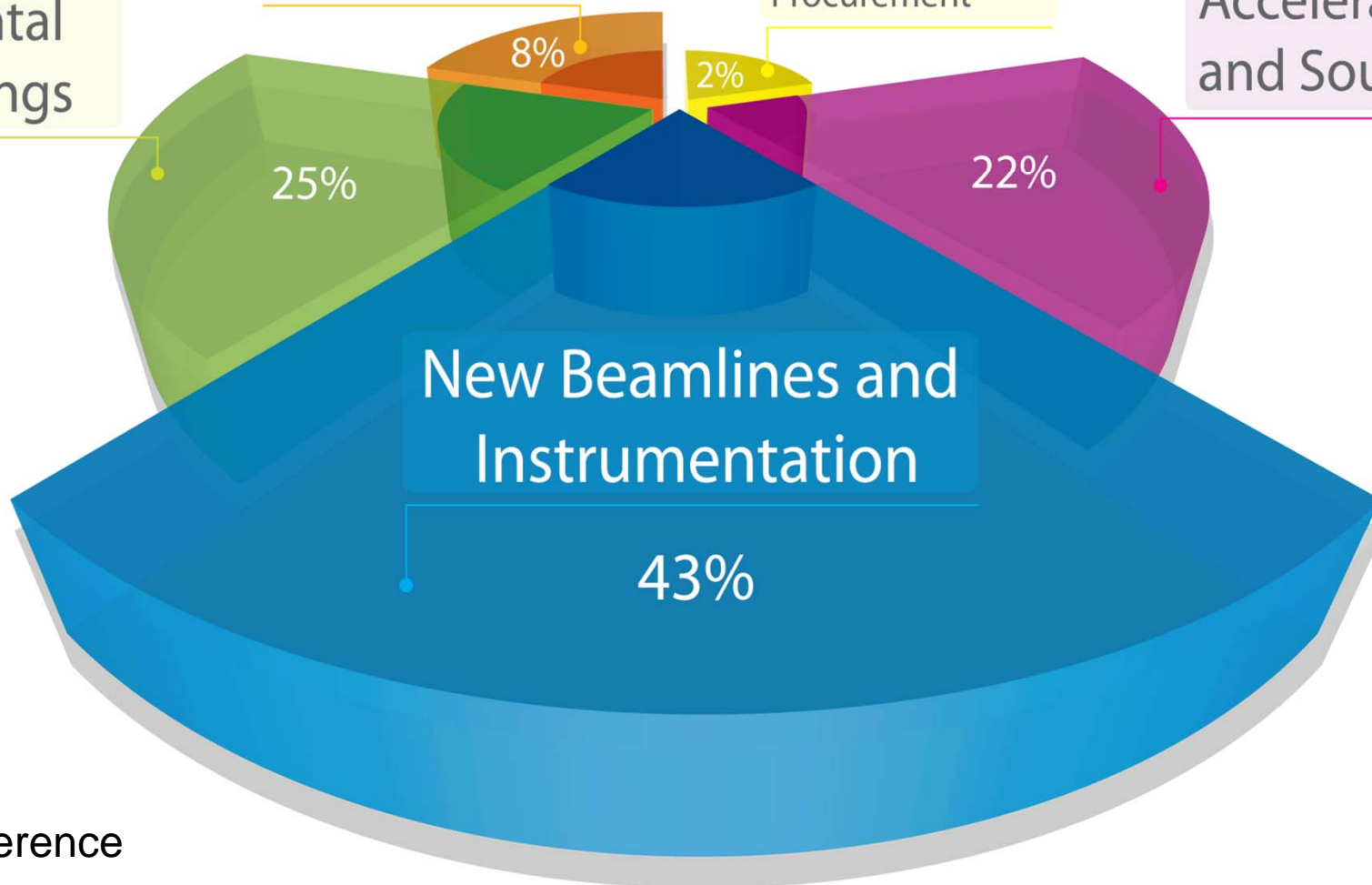
New Building Infrastructure
New Data Center

Laboratory and
Experimental
Hall Buildings

Data Processing
and Computing

Management
Human Resources
Finance
Procurement

Accelerator
and Source



* 2009 reference

Management

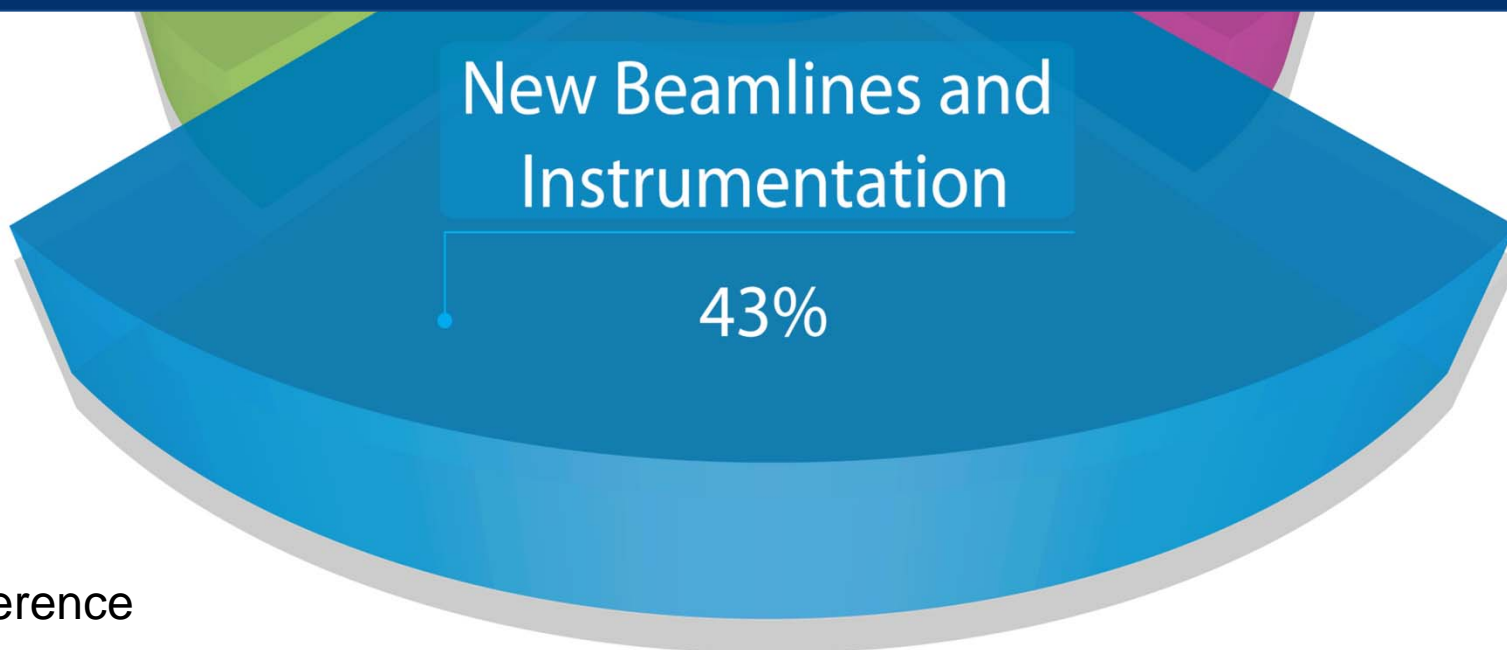
Since 2008, a new economical context



Several evolutions of our overall budget and spending profiles

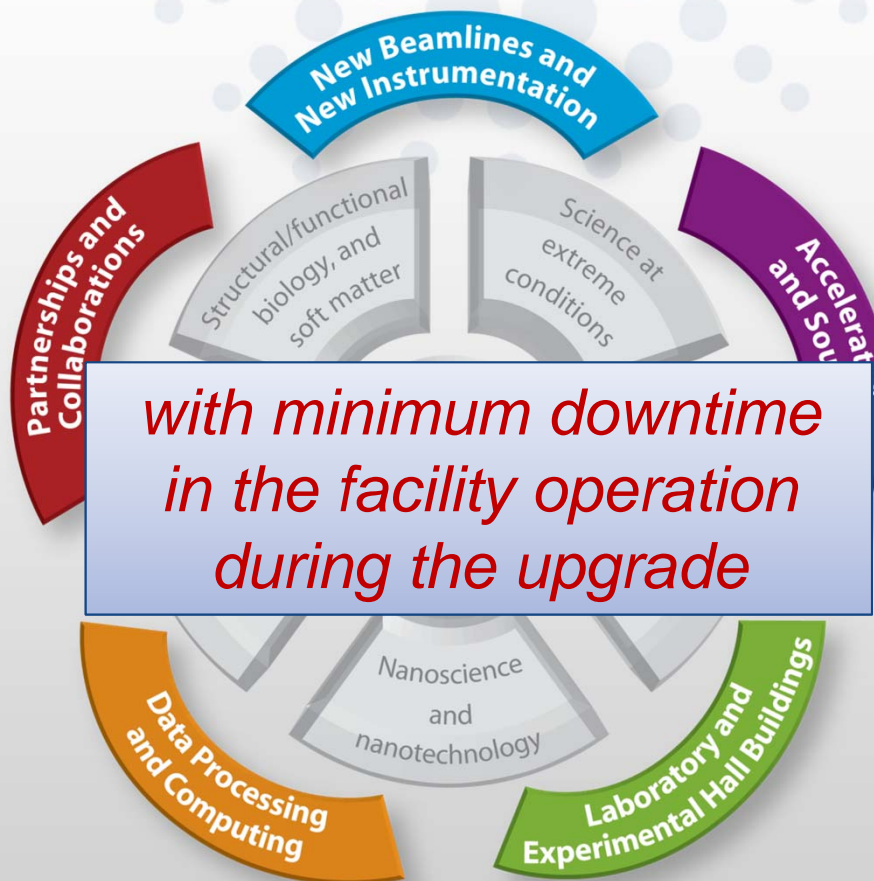


Continuous re-scoping our Upgrade Programme



* 2009 reference

*Renew beamline portfolio of the ESRF
(11 New beamlines + 2 moving beamlines)*



Accelerator Upgrade

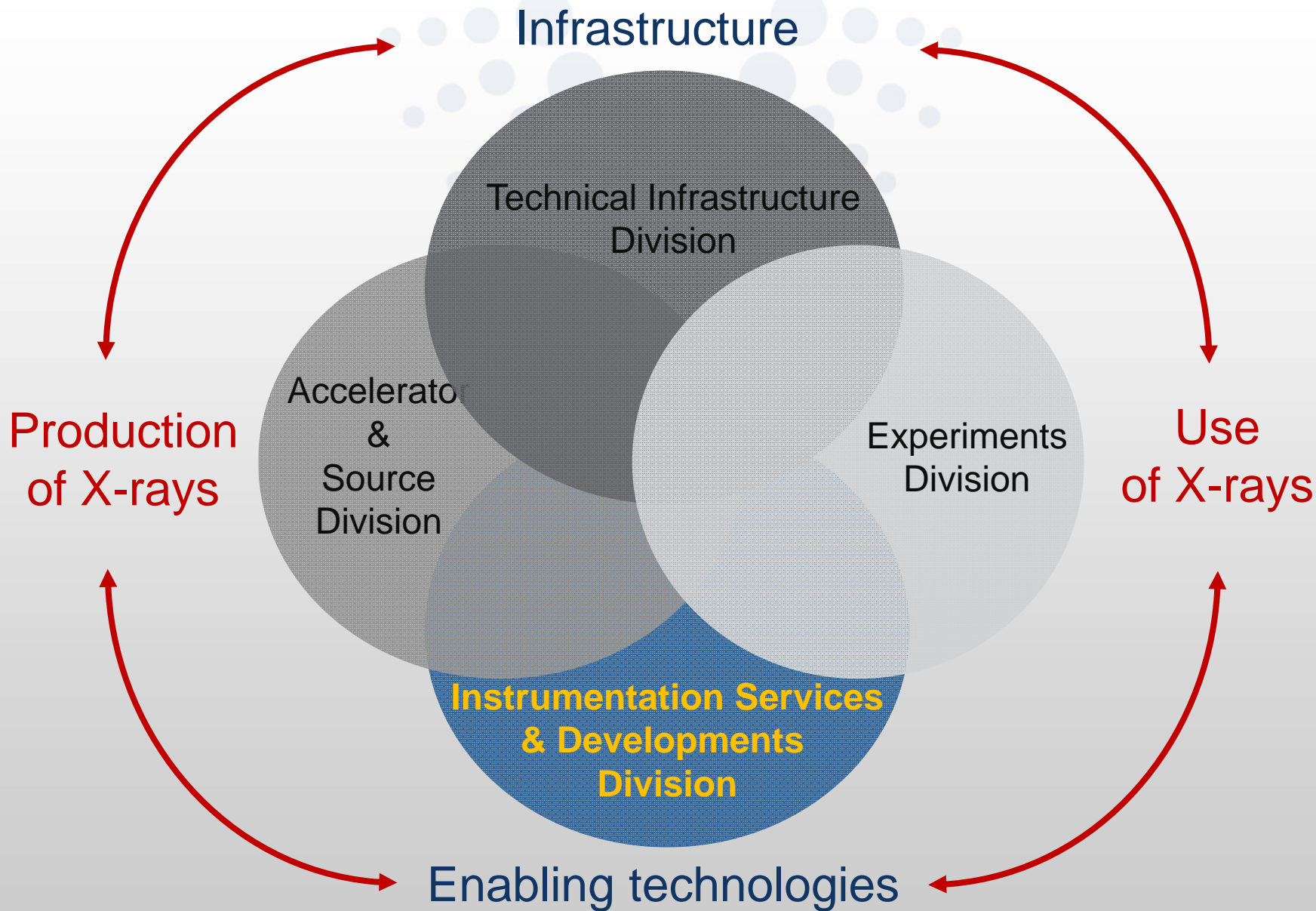
- IDs,
- straight sections,
- orbit correction system,
- RF...

New Building Infrastructure
New Data Center

- ✓ In-house culture tailored by 20 years of user operation
- ✓ Decentralisation of resources over a large number of instruments

- ESRF upgrade and refurbished BLs require cutting edge instrumentation
- Need for a fully integrated multi-disciplinary approach
- Need for transverse project structure
- Complement and maximise potential of existing instrumentation groups

- Adaptation of the internal organisation
- Implementation of new practices



*Instrumentation
Services and Development
Division*

Coordination
Office

Advanced
Analysis & Modelling

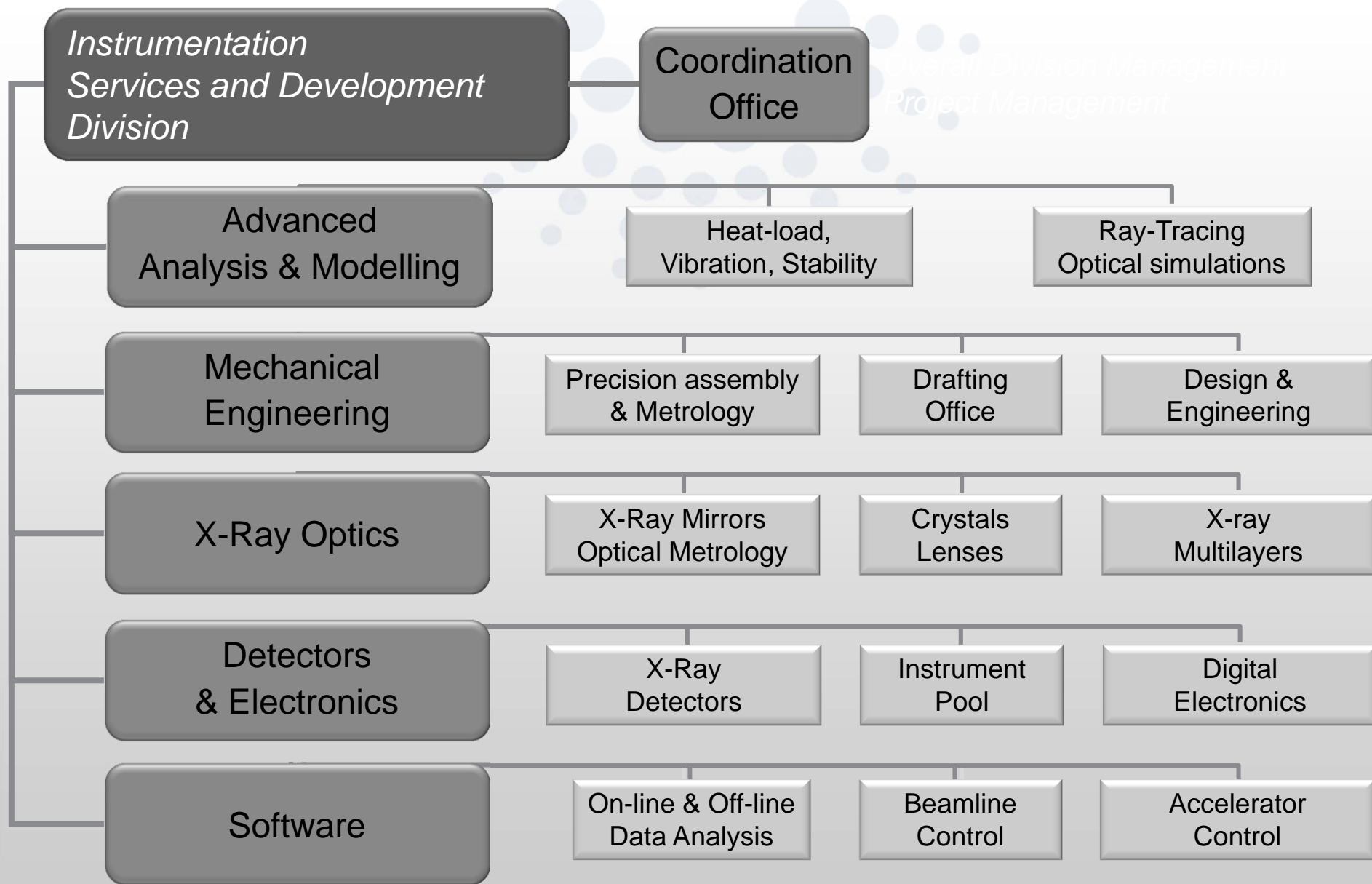
Mechanical
Engineering

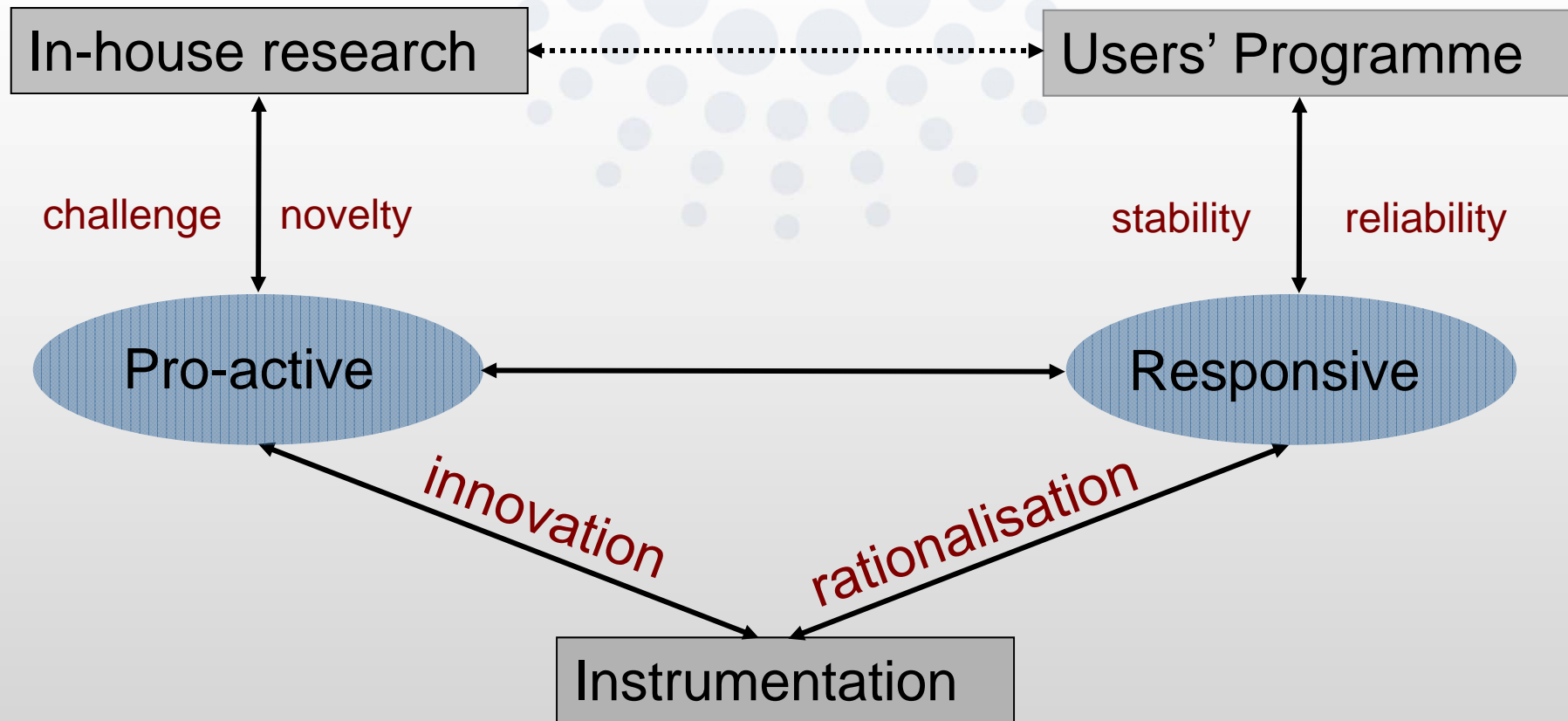
X-Ray Optics

Detectors
& Electronics

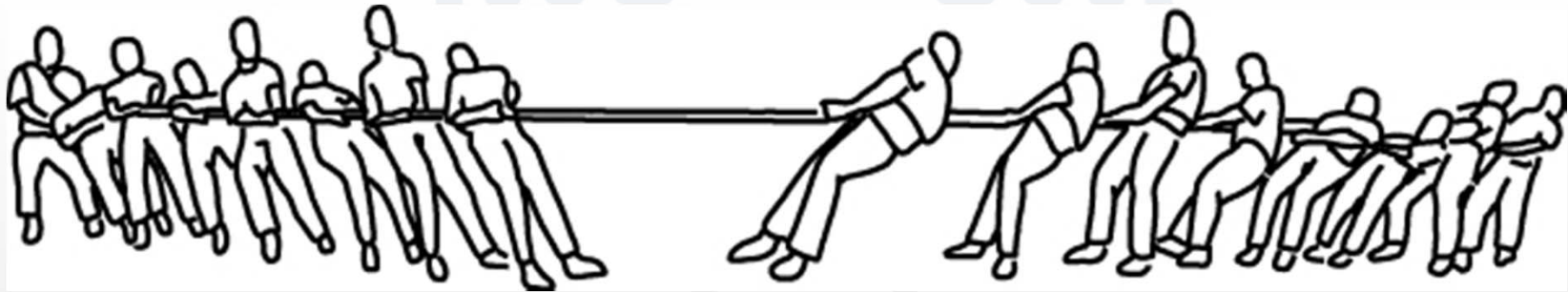
Software

- To bring together the expertise(s) required for the most critical technical developments that ASD and ExpD will need for the future of the ESRF
- To minimise the duplication of capabilities that existed in our former structure
- To facilitate the integration of the optics, sample environment, electronics, software, detectors on future beamlines
- To work effectively within a project structure and a cross-disciplinary management





This equilibrium is broken by the Upgrade Programme



Projects for Basic Operation

- Small size
- Many
- Short notice
- Annual budget
- Unclear prioritisation

Projects for the Upgrade Programme

- Large-scale
- Few and well documented
- Planned
- Multi-annual budget
- Clear prioritisation

both are equally important !

Is Project Management a solution ?

Culture inertia (legacy) and resistance to change

Unnecessary bureaucracy



Work overload



Inadequate tools



ECAPS + JIRA

ESRF Collaborative Activities and Project System

- Reference Project Database
- Project management , forecasting and planning
- Human resources management (project + individual)
- Progress project follow-up

P. Duru



Solutions web collaboratives de pilotage d'activités

S
Y
N
C

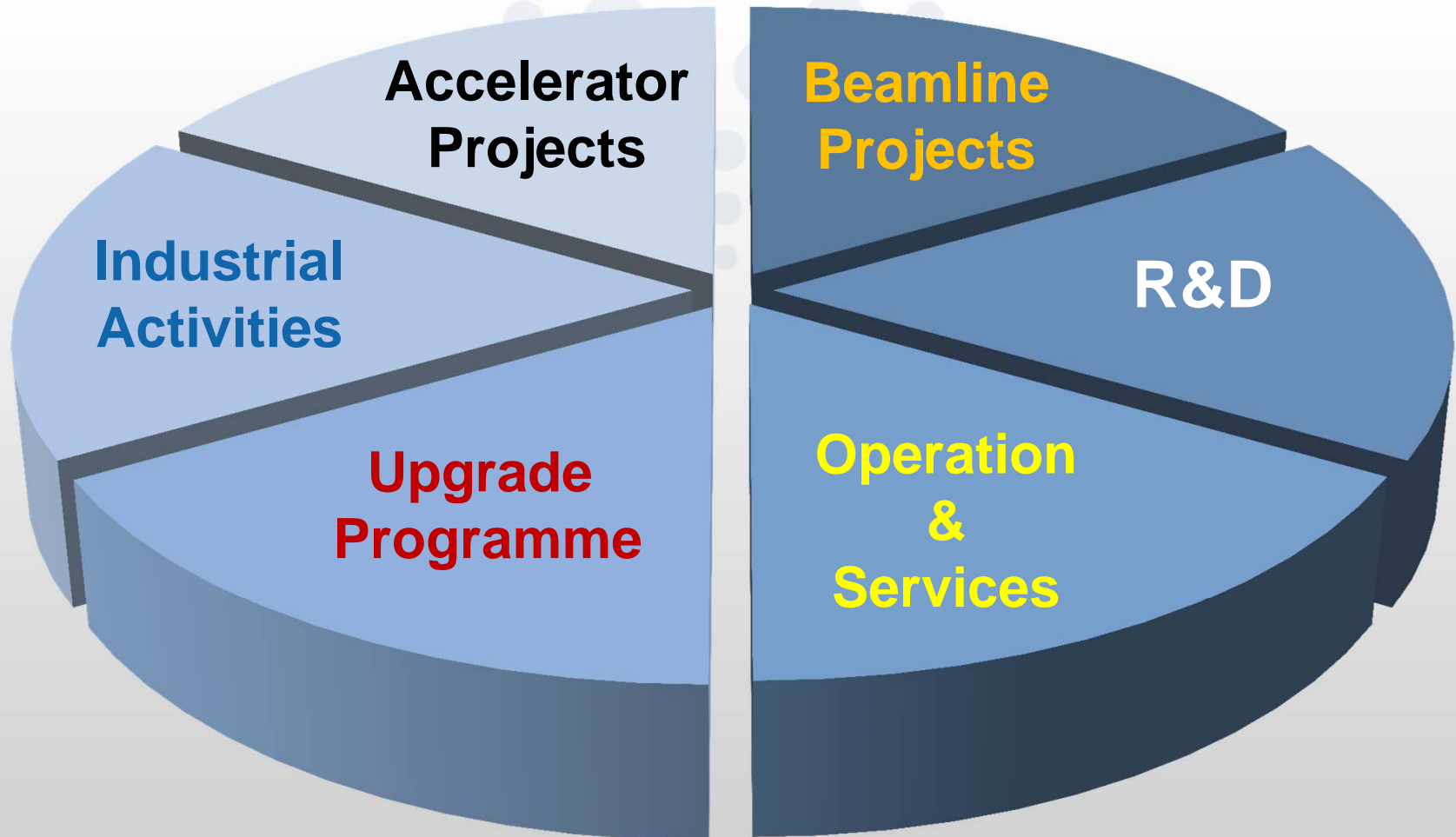


Atlassian JIRA

JIRA – Bugs and Issues Tracker

S. Ohlsson

- Operation & Services: *where are resources actually used?*
- Trends in issues
- Individual Workload



- *All activities must be taken into account in resource management*
- *Relative activity weight varies with engineering areas*

BCU_ [Beamline Control Unit]

Type: UNIT | Manager: Gilles BERRUYER

[History](#) | [Reports](#) ▾

Unit Actors & Roles (1) Members (17) **Resources** Activity Preferences

Allocations | Planning | Load | Resource Manager

Period: Custom ▾


Start: 01/01/2011

Allocations in: ☒ % ☐ Day (D)



January 1, 2011 - December 31, 2011 >>>

End: 31/12/2011

 Refresh

Resource loads per quarter

Resources ▾	Resource type ▾	Q1	Q2	Q3	Q4	Total ▾
Ale	Engineer	96 %	96 %	96 %	96 %	96 %
An	Engineer	71 %	71 %	71 %	71 %	71 %
Cy	Engineer	77 %	80 %	81 %	83 %	80 %
Da	Engineer	0 %	0 %	0 %	0 %	0 %
En	Engineer	99 %	105 %	105 %	105 %	103 %
Fr	Engineer	63 %	63 %	63 %	63 %	63 %
Gi	Unit Supervisor	102 %	102 %	101 %	100 %	101 %
Ho	Engineer	91 %	91 %	90 %	90 %	90 %
La	Engineer	98 %	100 %	105 %	105 %	102 %
Ma	Engineer	120 %	120 %	120 %	124 %	121 %
Ma	Technician	85 %	85 %	85 %	85 %	85 %
Ma	Engineer	63 %	63 %	65 %	100 %	72 %
Ma	Engineer	116 %	116 %	116 %	116 %	116 %
Ro	Engineer	82 %	82 %	82 %	82 %	82 %
Se	Engineer	84 %	84 %	88 %	92 %	87 %
St	Engineer	69 %	70 %	71 %	71 %	70 %
Vi	Engineer	51 %	51 %	80 %	91 %	71 %
Total		861.4 D	841.2 D	918.9 D	871.5 D	3493.0 D

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


Allocations Planning Load Resource Manager

Period: Custom ▾

Start: 01/01/2011 

Allocation rate

End: 31/12/2011 

Unavailable  ≤ 25%  ≤ 75%  100% 
0%  ≤ 50%  < 100%  > 100% 

 Refresh

Resource - Availability	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Alc												
An												
Cy												
Da												
En												
Fr												
Gi												
Ho												
La												
Ma												
Ma												
Ma												
Ma												
Ro												
Se												
St												
Vi												
Total in days	273.5	273.5	314.5	261.4	302.8	277.1	276.8	315.4	326.6	320.8	307.1	243.7
Availability in days	66.5	66.5	76.5	61.6	71.2	62.9	63.2	62.6	55.4	46.2	42.9	42.3

Application ▾ Projects ▾ Programs ▾ Resources ▾ Activities ▾ Portfolios ▾ Actions ▾ Documents ▾ Help ▾

Home > Units > BCU_ [Beamline Control Unit]

BCU_ [Beamline Control Unit]

Type: UNIT | Manager: Gilles BERRUYER

[History](#) | [Reports](#) ▾

Unit Actors & Roles (1) Members (17) **Resources** Activity Preferences

Allocations | Planning | **Load** | Resource Manager

Period: Custom ▾


Start: 01/01/2011 

Detail by: Project type ▾

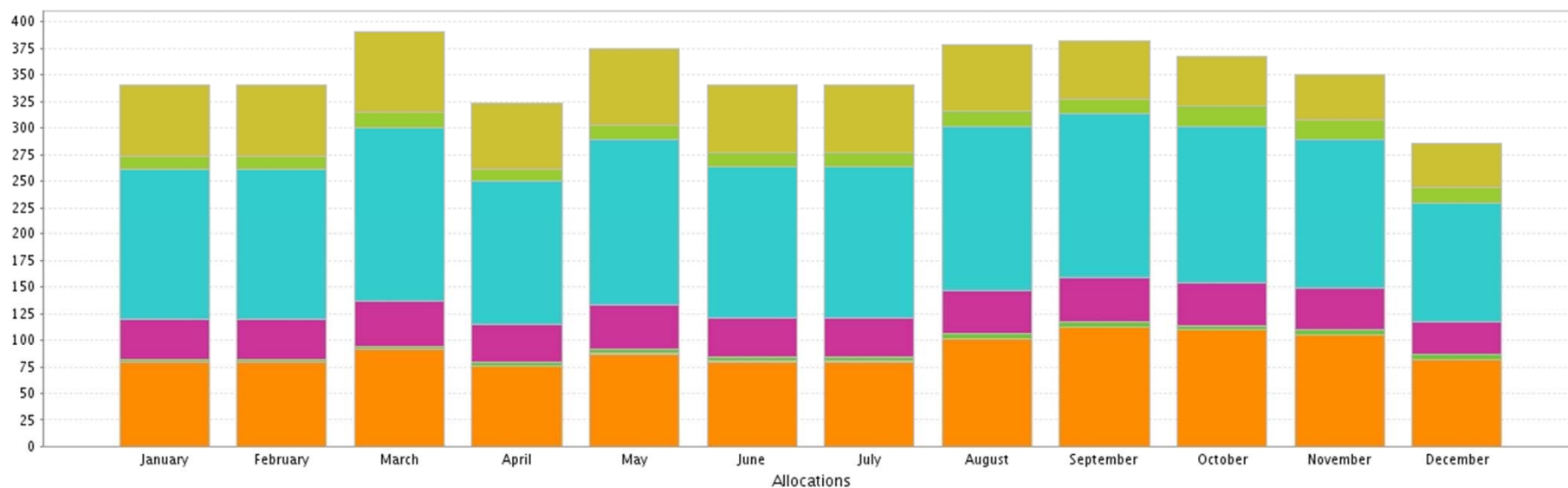









January 1, 2011 - December 31, 2011 >>>

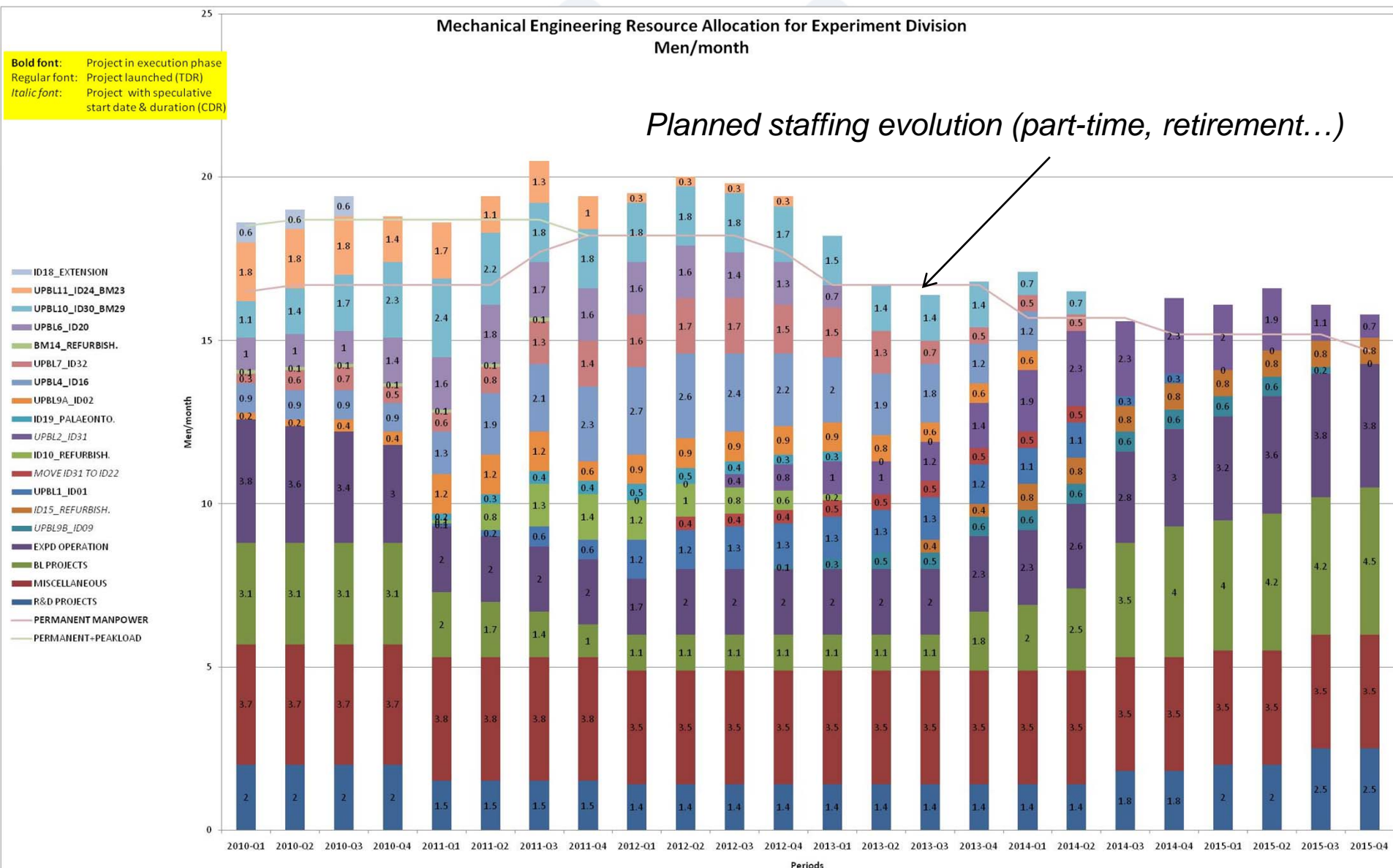
End: 31/12/2011 

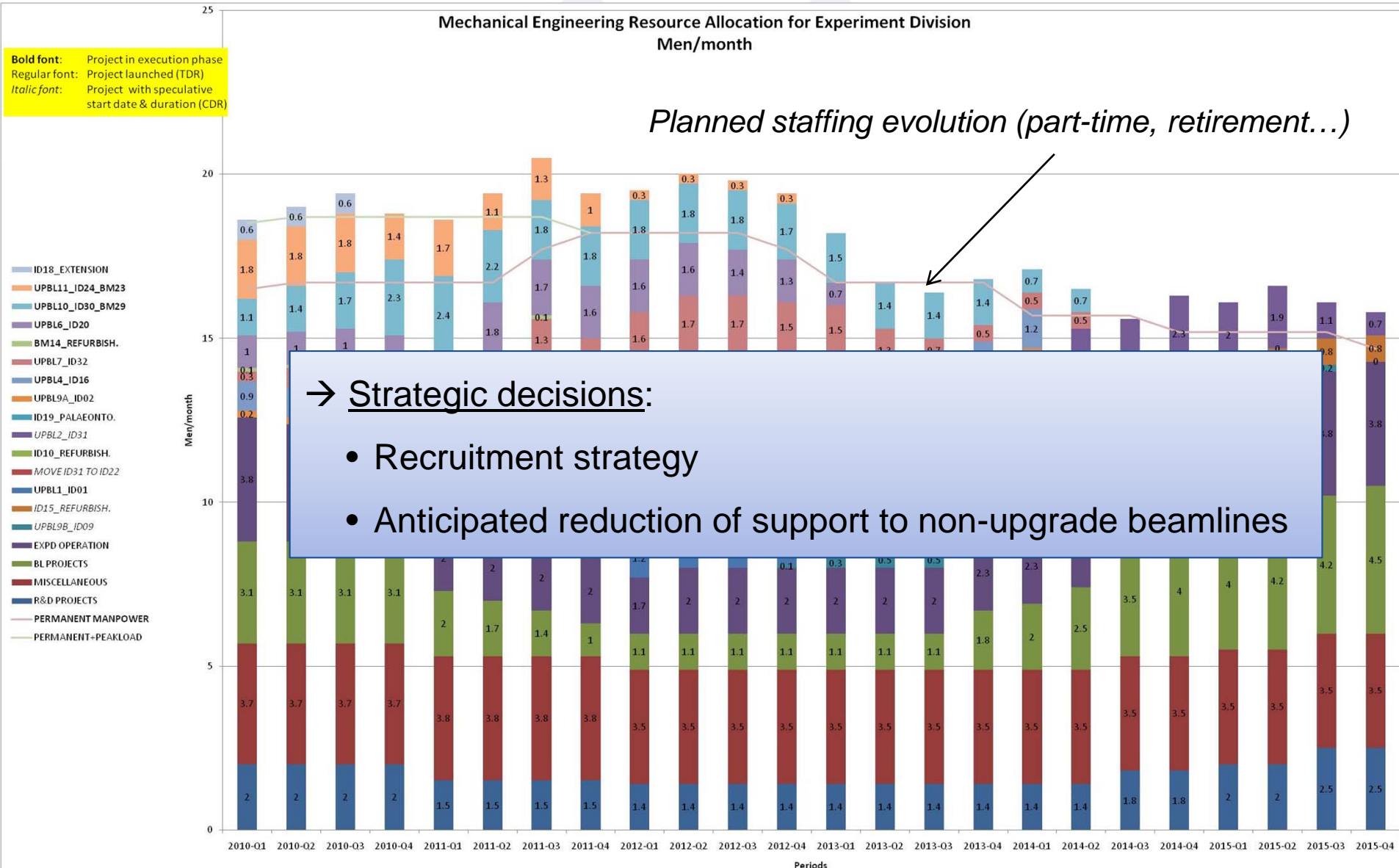
 Refresh

Resource loads per month

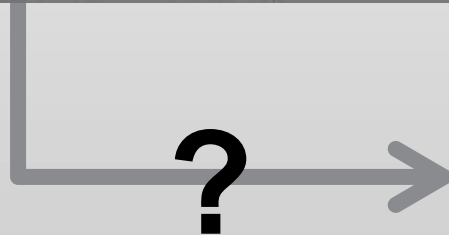


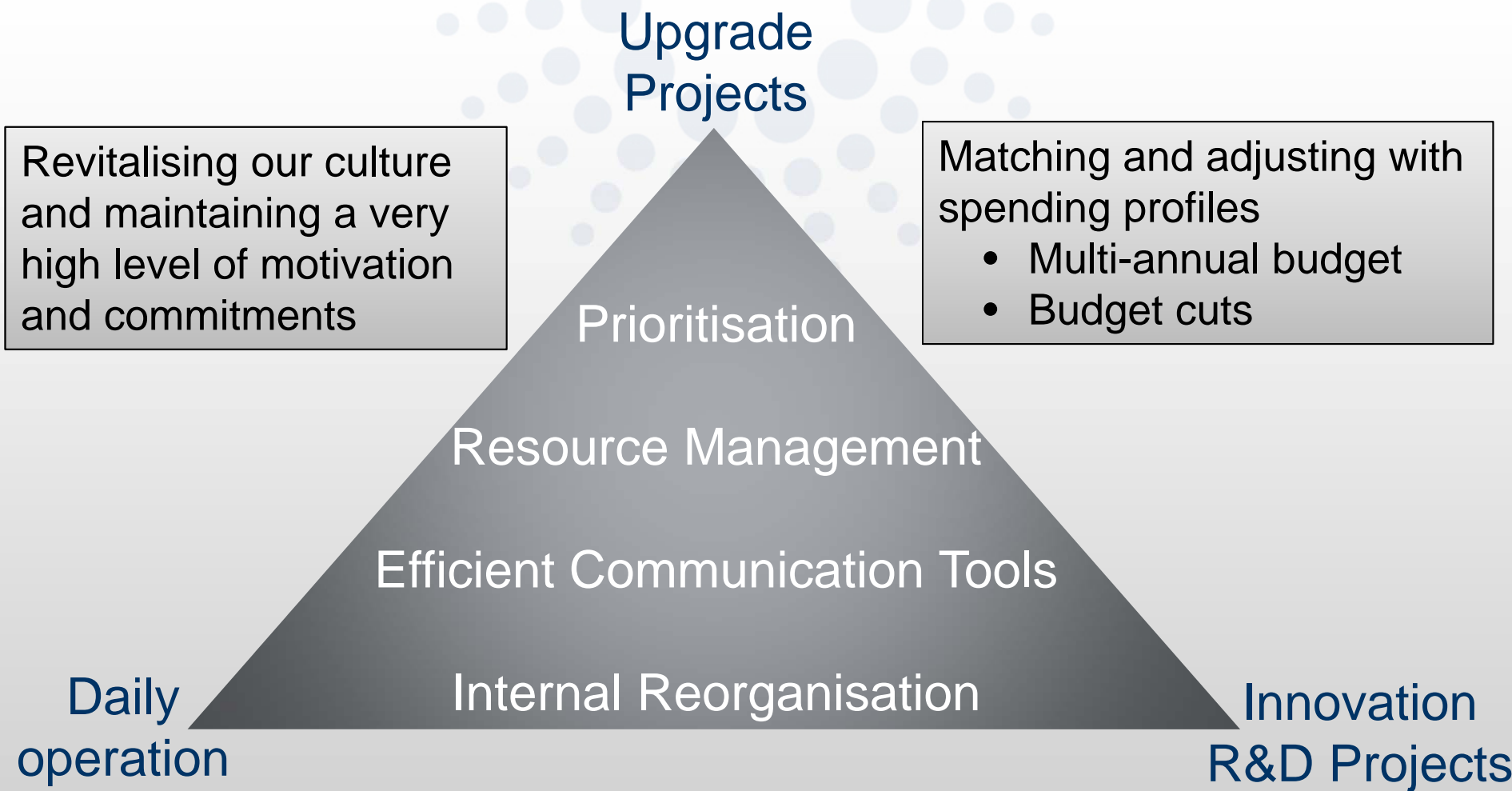
 Num. of days other
  Num. of days ASPRO [Acc&source not UPGRA]
  Num. of days BLPRO [Beamline not UPGRA]
  Num. of days ISDRD [Research & Development]
  Num. of days OPSE [Operation & Services]
  Num. of days UPGRA [Upgrade Programme]
  Num. of days available





*The Upgrade Programme has driven
a number of organisational and cultural changes*





***New practices towards a real change of culture
will be one of the outcomes of the ESRF Upgrade – Phase I***



Thank you for your attention !!