Grid: a research 'product' offering great market opportunities

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DATAMAT overview

- ✓ We are an Italian leading group in the supply of ICT solutions with 30+ years experience:
    - ~<u>1,500</u> highly qualified employees (end 2004)
    - <u>170.9 M€</u> Sales, <u>28.3 M€</u> EBITDA (FY2004)
- ✓ Our mission is to supply <u>ICT solutions</u> (products, systems and integrated services) in specific segments of <u>vertical markets</u>
    - Bank, Insurance and Finance
    - Public Administration and Healthcare
    - Telecommunications, Media and Utilities
    - Defence, Space & Environment
    - Industry

  leveraging on:
    - strong <u>application expertise</u> (knowledge of client primary processes)
    - strong <u>technical and technological competencies</u> ("state-of-the-art")
    - <u>management and organizational capabilities</u> in complex and high economic value contracts

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Why DATAMAT in Grid?

- ✓ Our traditional focus is on innovation, with a long record of international R&D projects followed by successful commercial exploitation.

- ✓ We perceived Grid as one of the most promising novelties for the ICT market, enabling distributed applications, and emerging scenario such as e-collaboration.

- ✓ In 2000 we decided to participate in the first large Grid Project in Europe, to acquire the specific knowledge of technology and to understand its potential business return in terms of application and services deployment…

… and in the following years to other European outstanding initiatives:

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What kind of collaboration with research institutions?

✓ The collaboration with research institutions, for example the computer scientists within the High Energy Physics community, is extremely profitable.

✓ The cross-fertilization from mixing different backgrounds allowed our teams to improve:

- Flexibility
- Teamwork
- Openness to innovative ideas
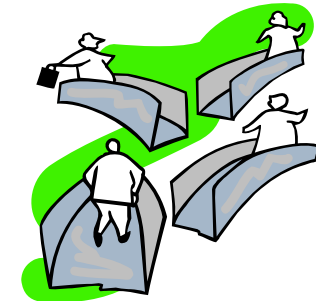
and to transfer our traditional development culture in terms of:

- Structured approach
- Consolidated methodologies for analysis and design
- Tight project management (resource allocation, planning, …).

What risk for exploitation?

The major hindering factors, that could jeopardise our business perspectives, are:

✓ <u>Technology</u>

- The architectures, the available implementations, the relevant standards not yet mature enough to have a kind of "grid-out-of-the-box" to be easily demonstrated to potential industrial customers.

✓ <u>Market</u>

- Customer reluctance towards innovative concepts and little confidence in the technology as the solution to problems.

- Commercial attitude to promote 'results' much earlier than the actual availability and offer fragmentation.

Emerging Technologies Hype Cycle 2005
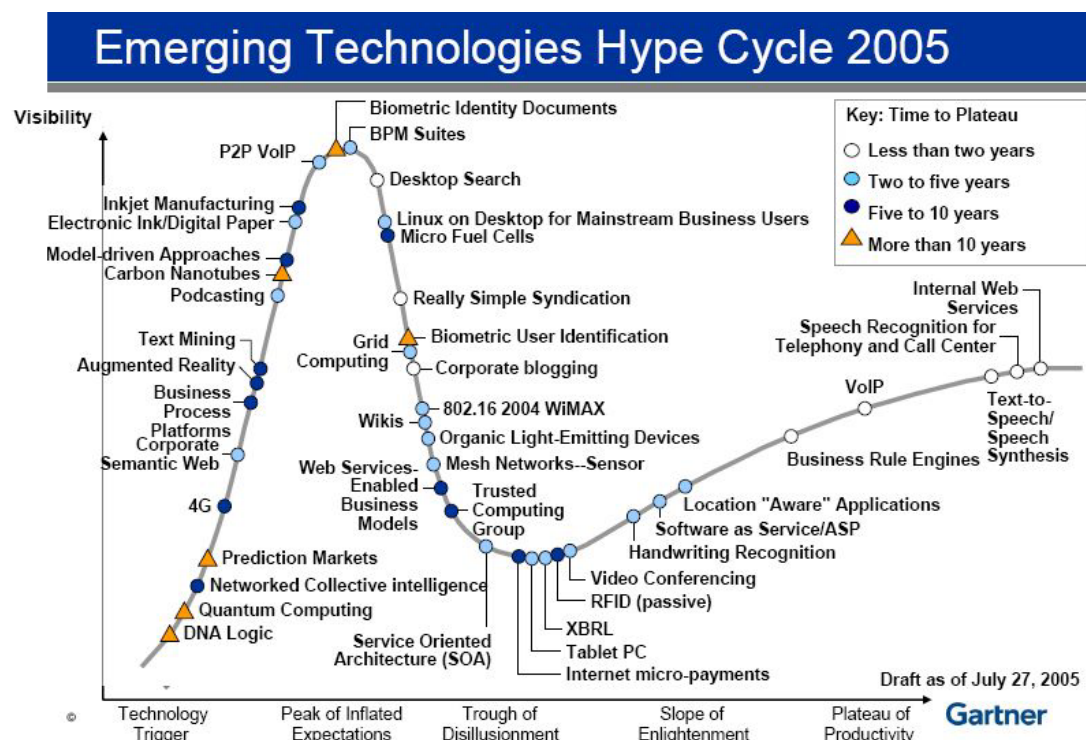
How to mitigate such risk?

✓ Beyond the actions undertaken by companies (individually or in association), DATAMAT believes that it is important to interact with the <u>public component of research</u>, in order to achieve <u>stability</u> and <u>continuity</u>, the two main factors really making possible Grid <u>commercial exploitation</u>.

✓ This can be achieved undertaking and securing initiatives at all levels (National, European, Global) in terms of:

- <u>Infrastructure</u> deployment
- <u>Middleware</u> standardisation
- <u>Application</u> development

A pan-European Grid infrastructure deployment

✓ Relationship with public sector research is here fundamental to deploy and operate a wide and reliable Grid <u>Infrastructure</u> that can also be <u>available</u>, at least initially, to Industrial prospects / customers.

✓ This will improve industrial end-user <u>confidence</u> in Grid, when they have problems suitable to be solved with the help of the technology, but no enough evidence of its benefits on a large scale and in an industrial arena.

✓ We consider the EC FP6 initiative EGEE / EGEE II, setting up a production-quality infrastructure for research, the first steps in this direction: such effort should be supported as a <u>long-lasting initiative</u>, beyond the end of the projects.
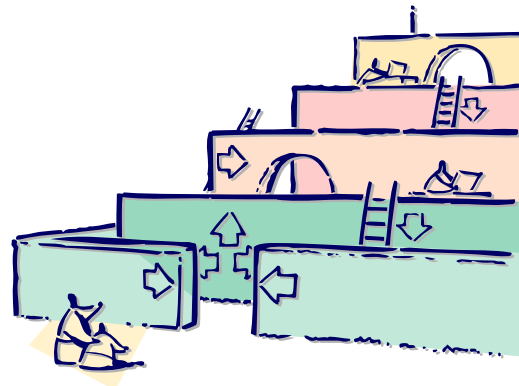
# A convergence of middleware on Grid for business...

✓ From our industrial viewpoint, it is mandatory that middleware technologically converges on solid <u>business models</u> and <u>shared architectures</u> to be exploited on Grid Infrastructures.

✓ As Grid is about <u>dynamic sharing</u> and <u>collaboration</u> across multiple <u>administrative</u> domains, this means to enhance and standardise technological aspects such as:

- <u>Security</u>, e.g. Trustworthiness, Integrity, Confidentiality, Identity Identification, Privacy, Reliability, ...
- <u>Service orientation</u>, e.g. QoS, SLA, fault tolerance, ...
- <u>Grid economics</u>, e.g. Accounting, Payment, Compensation...

plus

- <u>Certification</u> (as a result of an industrial level engineering process)

✓ In few words, to support the next generation of Grid technology for moving the focus from e-Science to e-Business.

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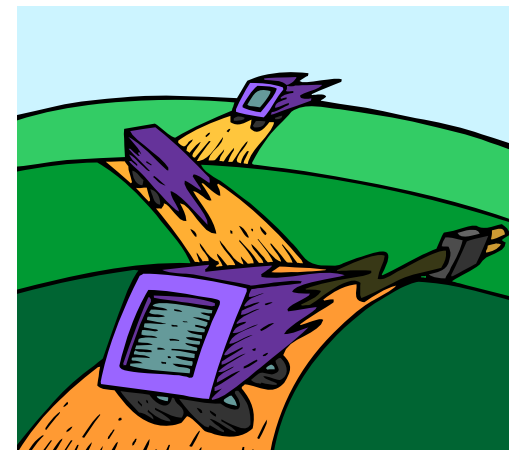
... in a coordinated way

✓ To ease <u>sharing</u> of developed solutions and technology <u>take-up</u> (in particular for SME's), and start building <u>value-added services</u>, public and private research institutions should commit themselves in setting up initiatives aimed at:

- Promotion, integration, validation and packaging of platforms and solutions,
- Repository of certified component / solutions
- Education, Training, "after-sales" support

✓ This would allow to complement on going initiatives, such as gLite development in <u>EGEE</u>, or next generation grid architecture definition in <u>NextGRID</u>, with long-lasting foundations.

✓ On-going efforts at continental and national level (e.g. US NMI, UK OMII, IT c-OMEGA,...) should be taken into account, harmonised, and federated.

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A new generation of Grid-enabled applications

✓ The initiatives on application side shall:

- Ease the diffusion of a Grid culture, mostly through a generalised <u>test-bed policy</u> aimed at demonstrating in concrete terms the advantages of its use, in strong synergy with research

- Grid-enable <u>classes of applications</u> by developing suitable tool-kits and/or porting existing problem solving environment on Grid contexts

- <u>Standardise</u> (standardise, standardise, …) as much as possible the access to Grid services and resources, to strongly <u>reduce dependency on specific middleware implementation and/or specific infrastructure</u>

- Explore new working environments (e.g. ambient intelligence, nomadic / mobile environment in <u>Akogrimo</u>)
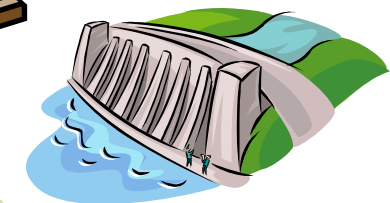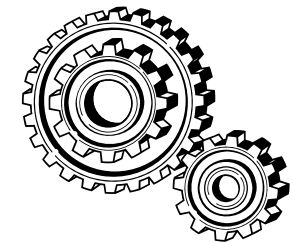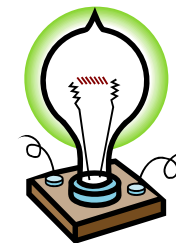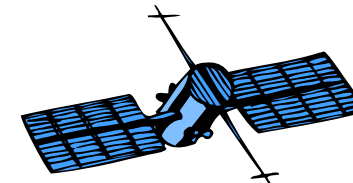
Conclusions

✓ The growing interest of industrial user community shows that initial <u>expectations</u> on Grid are going to be <u>fulfilled</u>.

✓ Initial enthusiasm is now being replaced by awareness of the actual <u>potential</u> and <u>risks</u>, in terms of business and ROI, adequately steering strategic technical choices (e.g. web services-grid convergence).

✓ To make profit out of technology, it is fundamental to achieve the needed <u>stability</u> and <u>continuity</u>, focusing new initiatives on bridging research and industry.

✓ DATAMAT, while confirming its commitment by participating and leading Grid development and take-up activities, believes that stakeholders should:

- Put in action a long-living global Grid <u>infrastructures deployment plan</u> (migrating towards new models, e.g. DANTE)
- Ensure the support to the <u>technological convergence of middleware on Grid for business</u>
- Put in place <u>promotion</u>, <u>education</u>, <u>certification</u>, <u>repository</u>, <u>technology transfer</u> activities to widen Grid culture diffusion and favour <u>implementation</u> in new <u>application</u> contexts.

MANY THANKS
FOR YOUR KIND ATTENTION!

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