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IREDES

International Rock Excavation Data Exchange Standard

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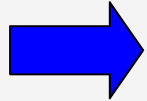
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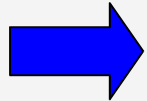
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IREDES =**International Rock Excavation Data Exchange Standard**

Easy and cost efficient information exchange along the rock excavation working chain („horizontal“ integration)



Provide standardized information exchange between the process and central IT systems to enhance efficiency of data utilization e.g. in production control, mine planning, controlling and decision finding

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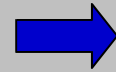
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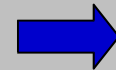
In standardized data exchange, both machines use identical data formats, they “talk the same language” - IREDES



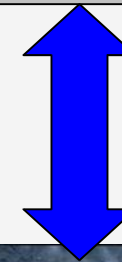
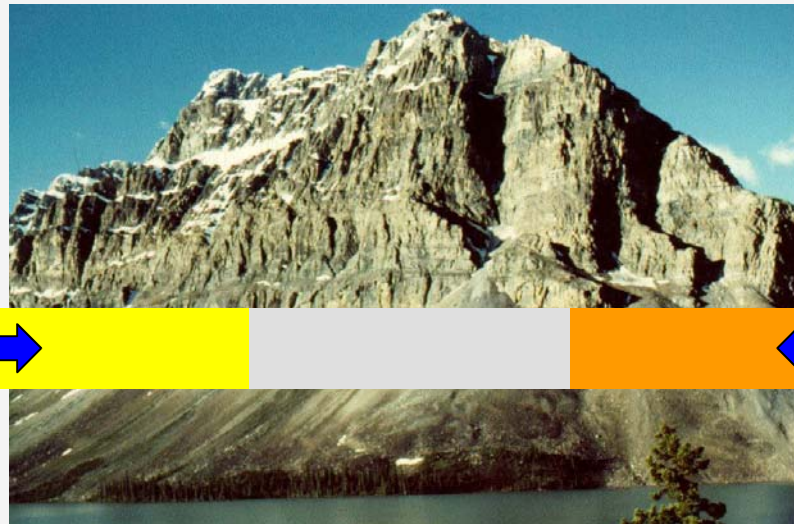
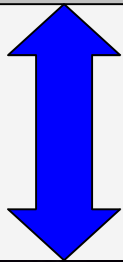
Standardized, interchangeable drill plans



Standardized, interchangeable reports



Standardized access to online status



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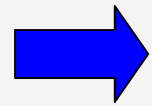
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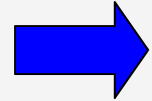
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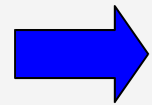
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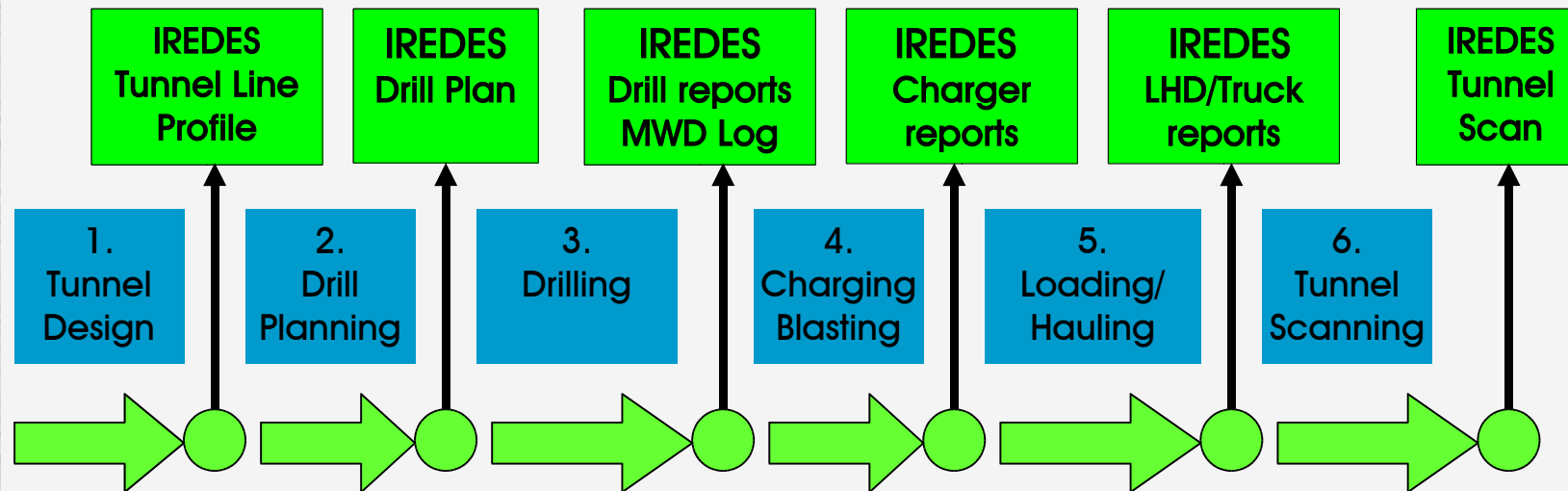
Collaboration of different equipment along the process



Flexibility in use of equipment: Easy replacement



Easy transfer of data to the next step in the "working chain":



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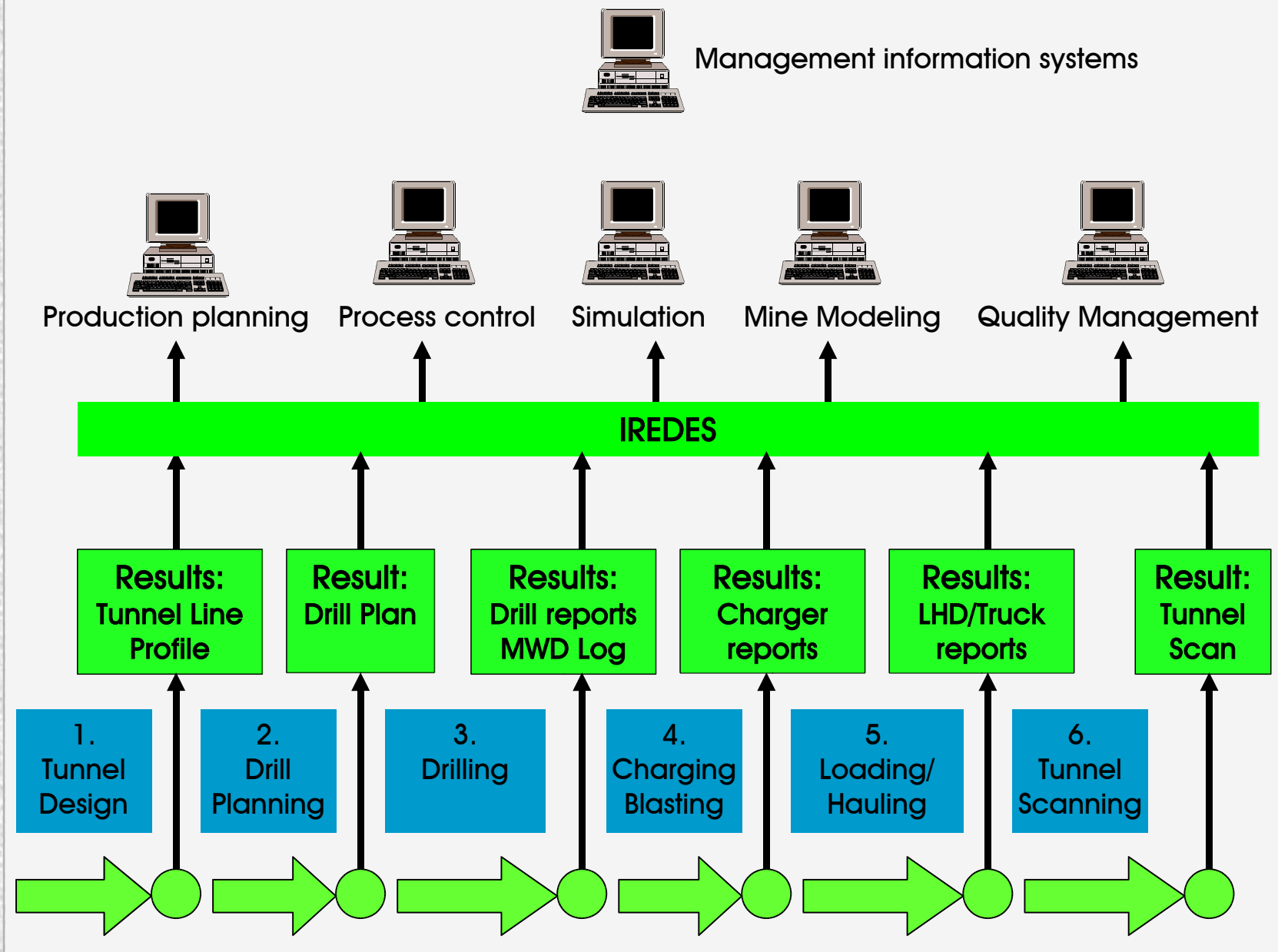
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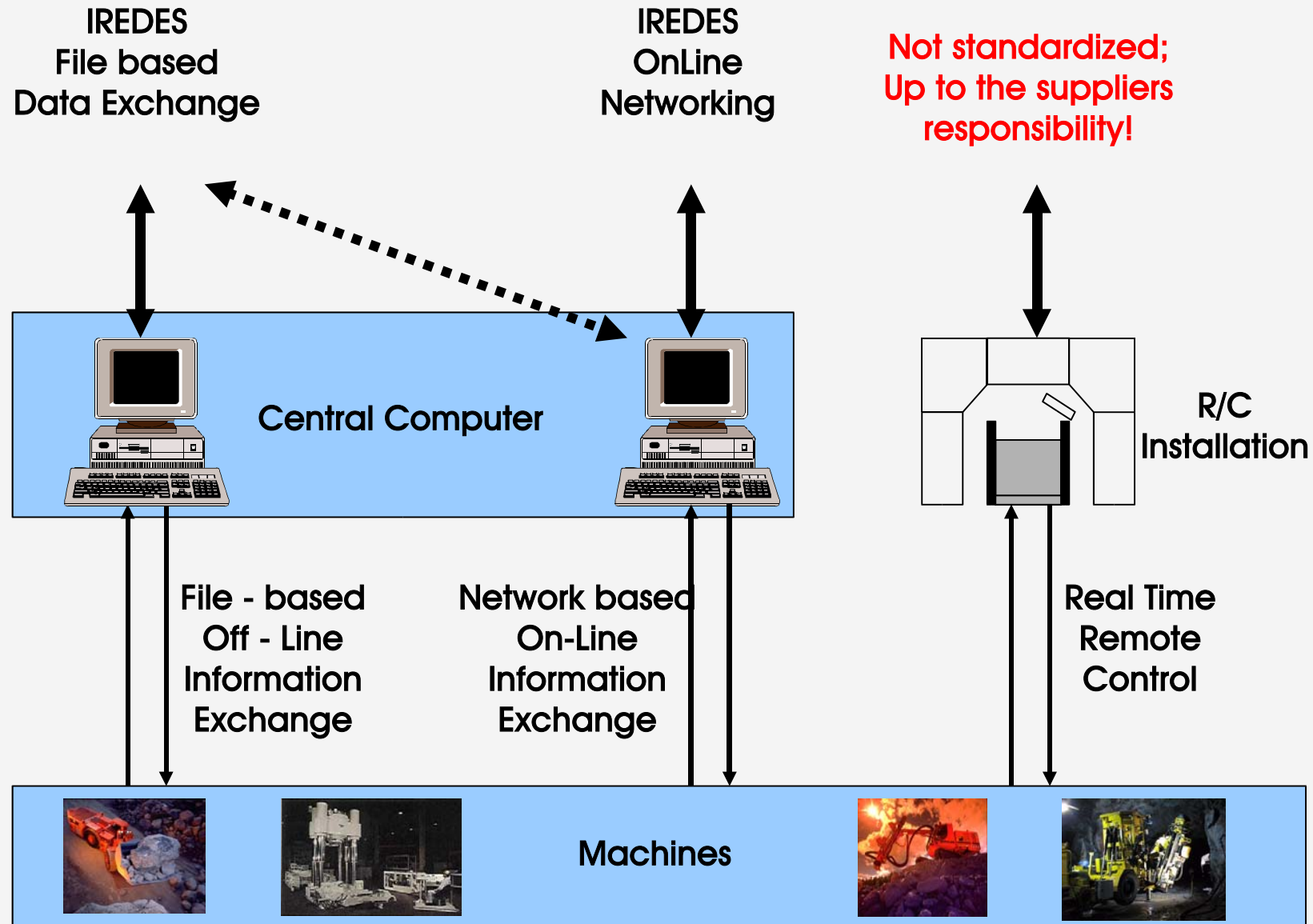
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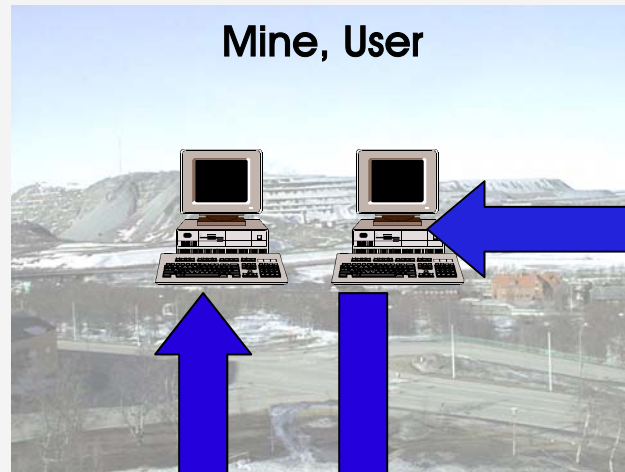
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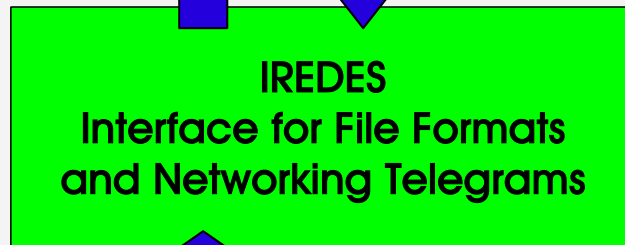
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Mine, User

Mine internal data processing: Plan
file creation, log file database
storage etc.
Mine individual



Application level communication
between the machines and
external computer systems:
IREDES



Machine internal electronics and
communication e.g. via CAN buses,
OEM individual, if not otherwise
standardized (SAE, ISO,...)

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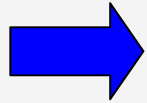
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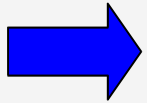
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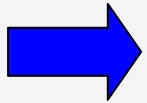
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XML = „Extensible Markup Language“



Internet-Technology, much like HTML



While HTML is used to describe Layout, XML is used to describe content.

```
<?xml version="1.0" encoding="UTF-8"?>
<DRPPerf xmlns="http://www.iredes.org/xml/DrillRig" xmlns:IR="http://www.iredes.org/xml"
  IRVersion="V 1.0" IRDownwCompat="V 1.0" DRPPerfVersion="V 1.0" DRPPerfDownwCompat="V 1.0">
  <IR:GenHead>
  <IR:FileCreateDate>2005-03-16T23:56:04</IR:FileCreateDate>
  <IR:IRversion DownwCompat="V 1.0">V 1.0</IR:IRversion>
  </IR:GenHead>
  <IR:ReportId>String</IR:ReportId>
  <IR:StartLogTime>2005-03-15T23:57:04</IR:StartLogTime>
  <IR:EndLogTime>2005-03-16T23:56:04</IR:EndLogTime>
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  <TimeTag>2005-03-16T23:56:04</TimeTag>
  <TimeRun>2005-03-16T23:58:59</TimeRun>
  </DRPPcarrier>
  <DRPPboom>
  <TimeTag>2005-03-16T23:56:04</TimeTag>
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  </DRPPboom>
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  <IR:ChkSum>0</IR:ChkSum>
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```

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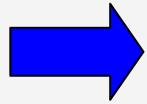
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„Three dimensions“ of standard setup:

1. IREDES basic components,
2. Application Profiles
3. Equipment Profiles

Application Profiles



Equipment Profiles



IREDES Base definitions



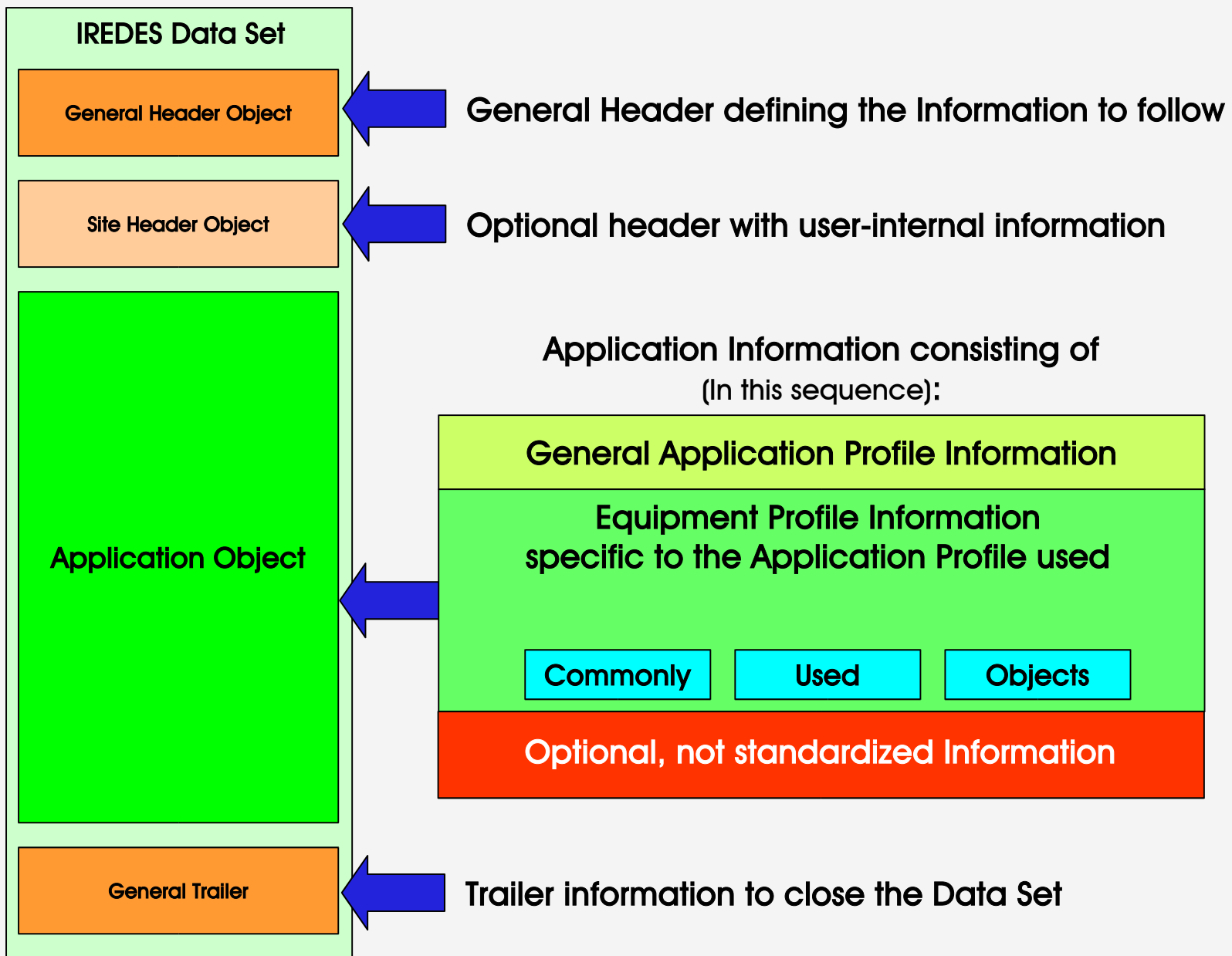
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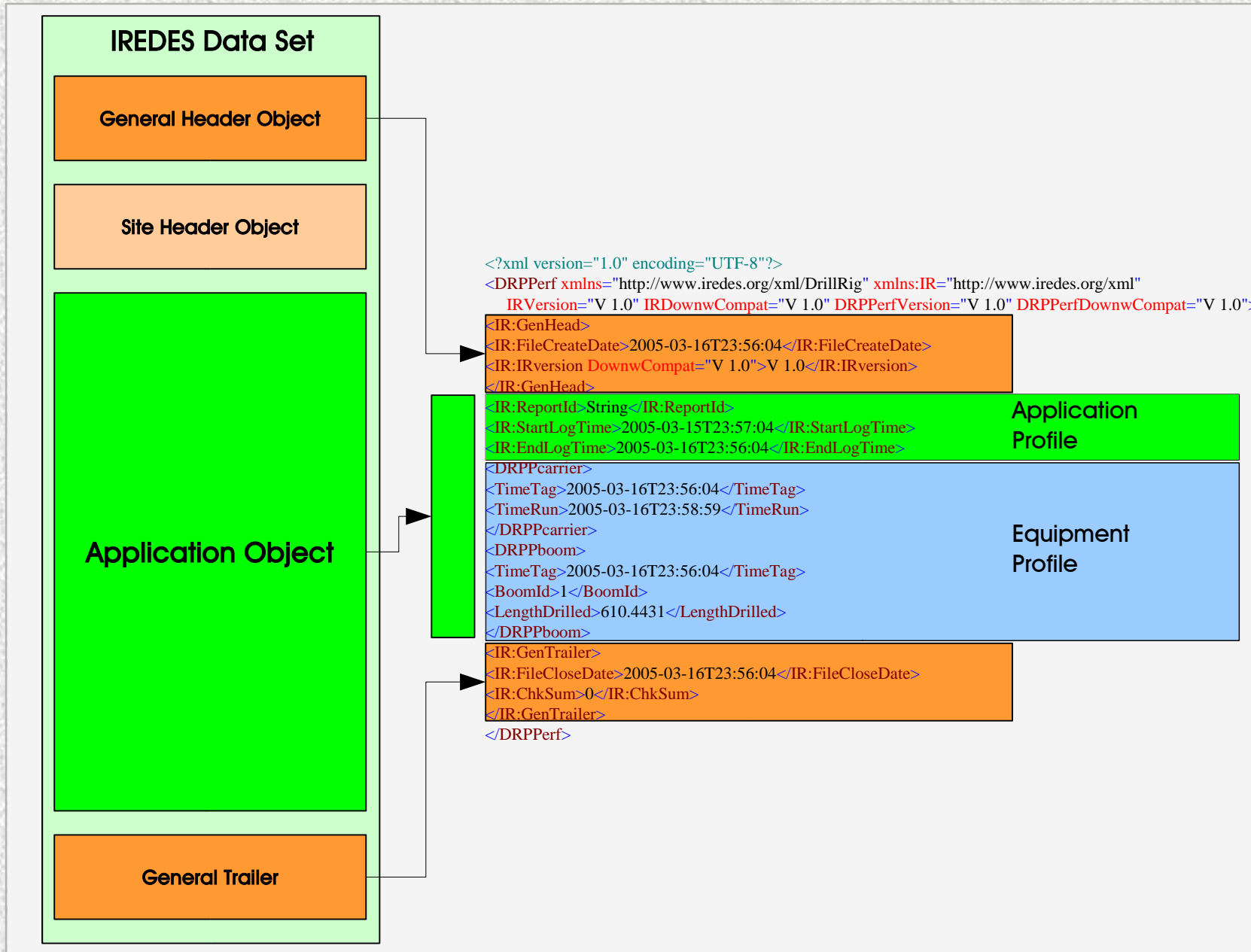
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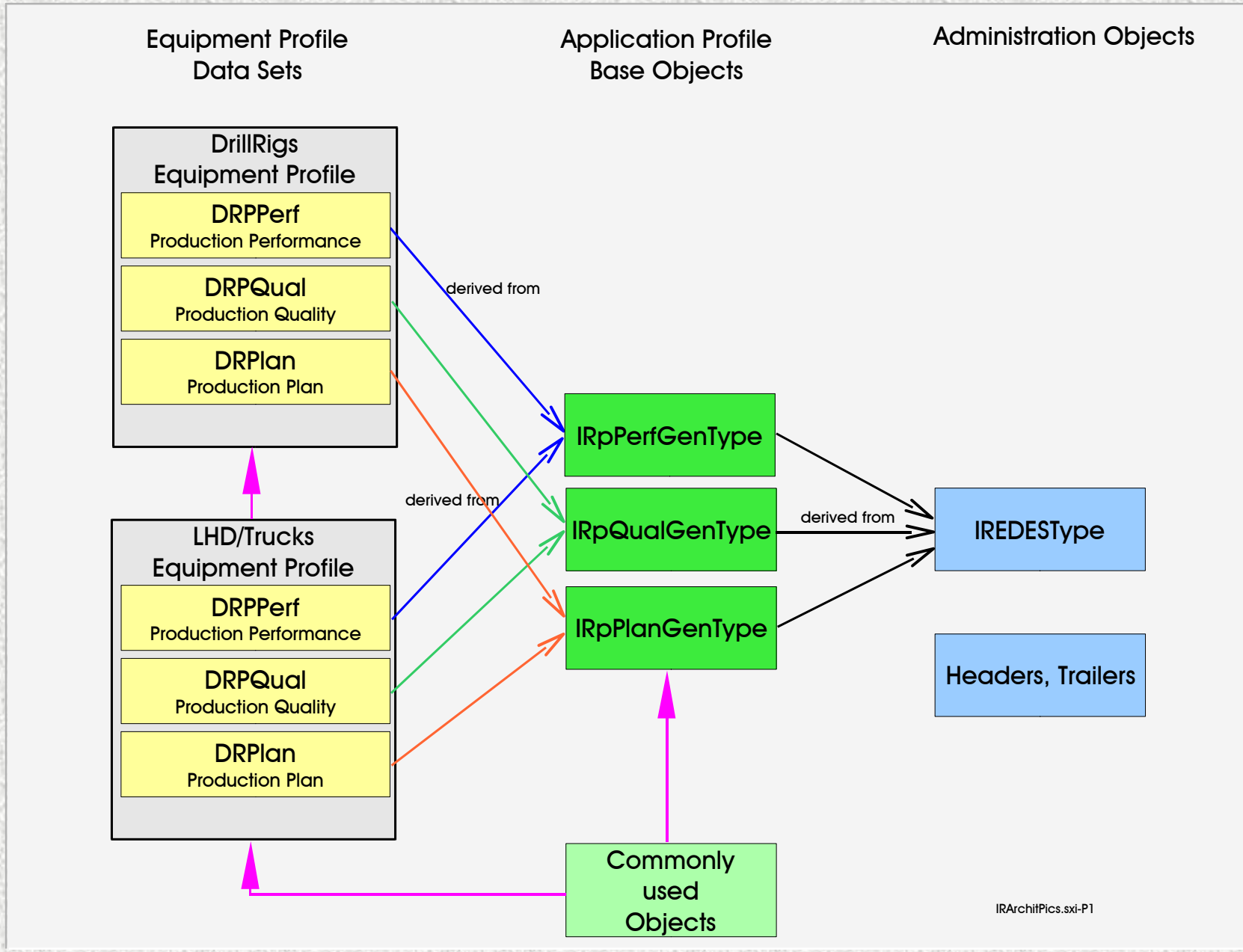


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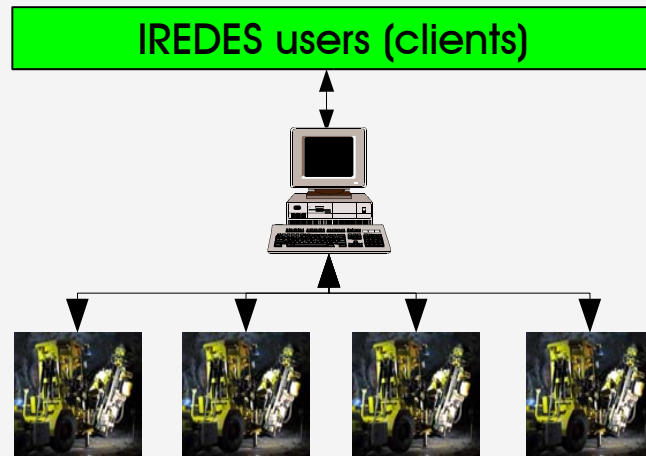
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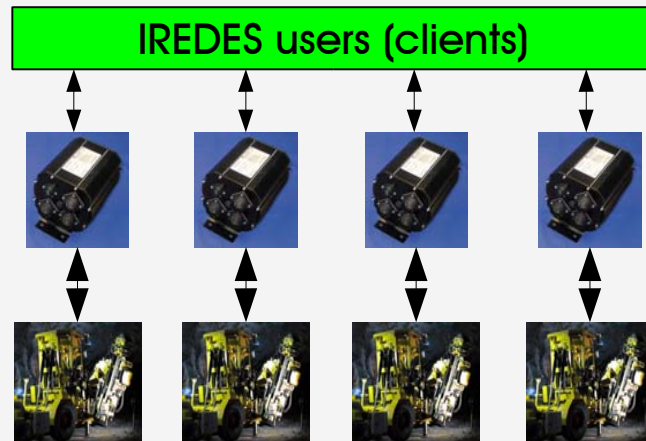
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**Central IREDES implementation:**

IREDES format generated on a central Server,
proprietary communication between machines
and server.

Discouraged for new designs!
Ideal for migration and integration of
existing equipment.

**Distributed IREDES implementation**

e.g. on an embedded computer on the machine

Provides full flexibility
Recommended for new designs!

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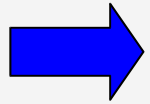
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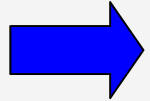
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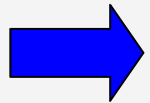
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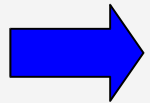
IREDES can be extended in any of the three dimensions without affecting existing definitions!



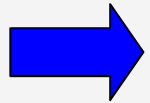
New Application Profiles (work order, maintenance,...)



New Equipment Profiles (Trains, Ventilation,...)



New administrative / tool components (networking,...)



„Hookup points“ for additional, not (yet?) standardized information

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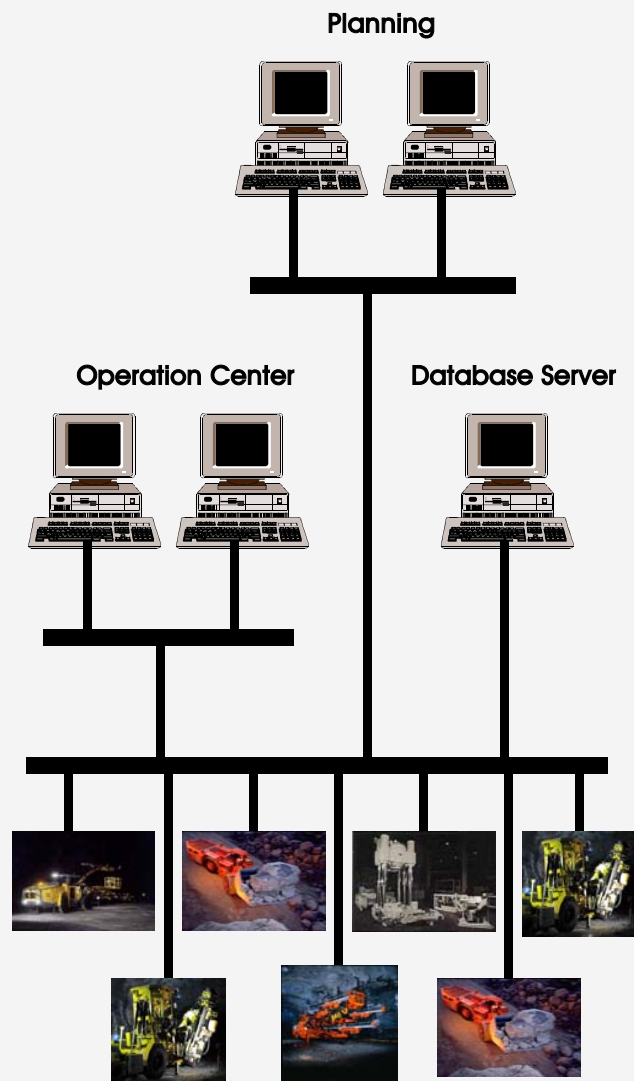
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➔ Concentrate Resources on the intelligent use of information instead of developing Interfaces!

➔ Different mines do not need different interfaces for identical types of Equipment:
A Drill Rigs drill holes in iron ore mines, gold mines etc.
It always requires and provides *drill rig information*.

➔ Due to less effort for automation, production may become efficient in centrally operated remote mining sites.

➔ Interface standardization leads to process simplification

➔ Simplification of the purchasing process:
Simply state "IREDES compliant data exchange".

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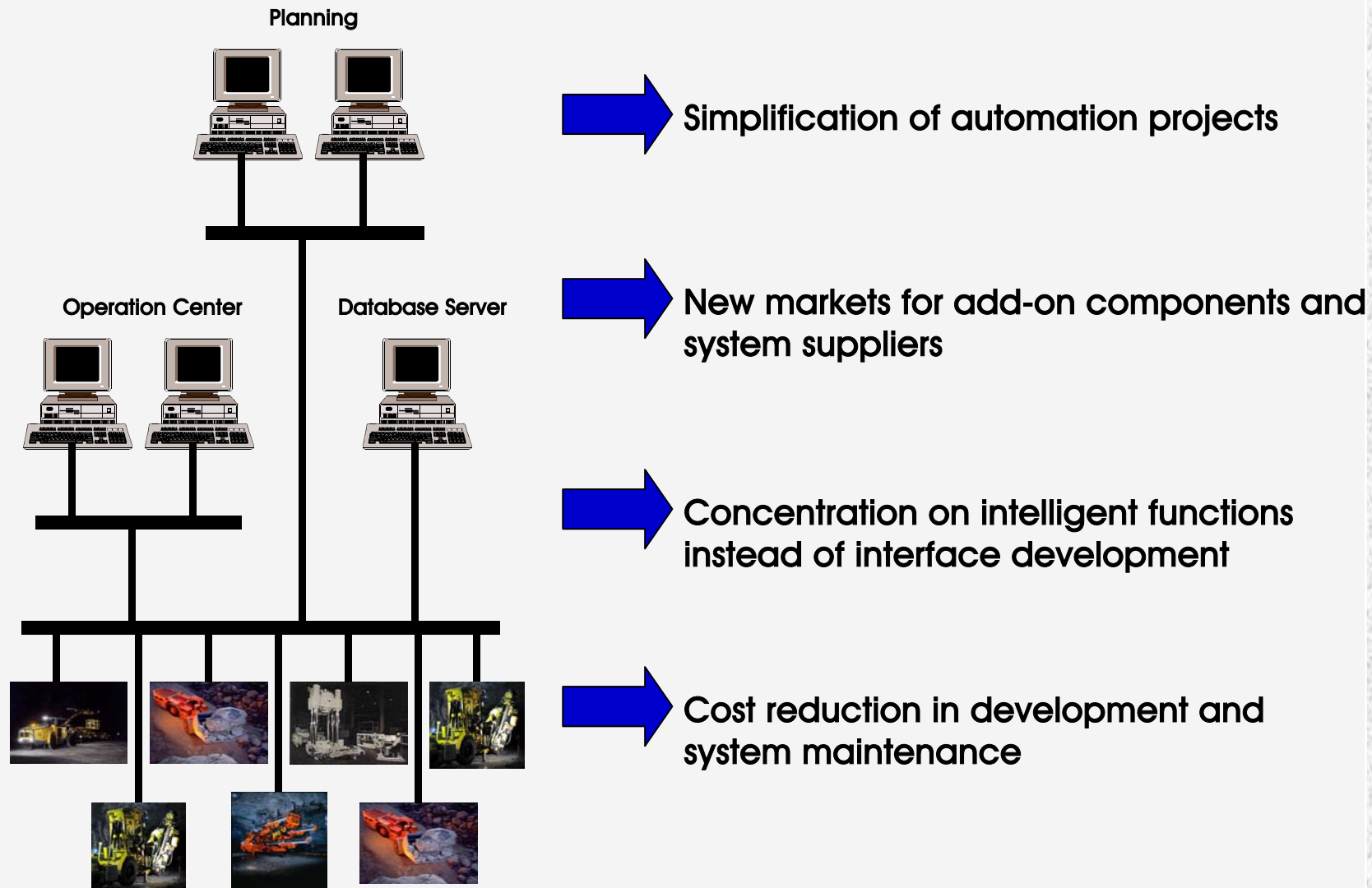
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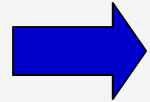
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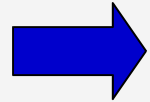
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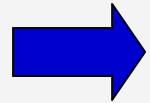
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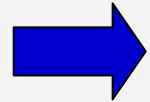
Standardize on application level Data Formats.



Standardize application level parameter content.



Provide a flexible coordinate system interchange



Coordinate with other standardization initiatives

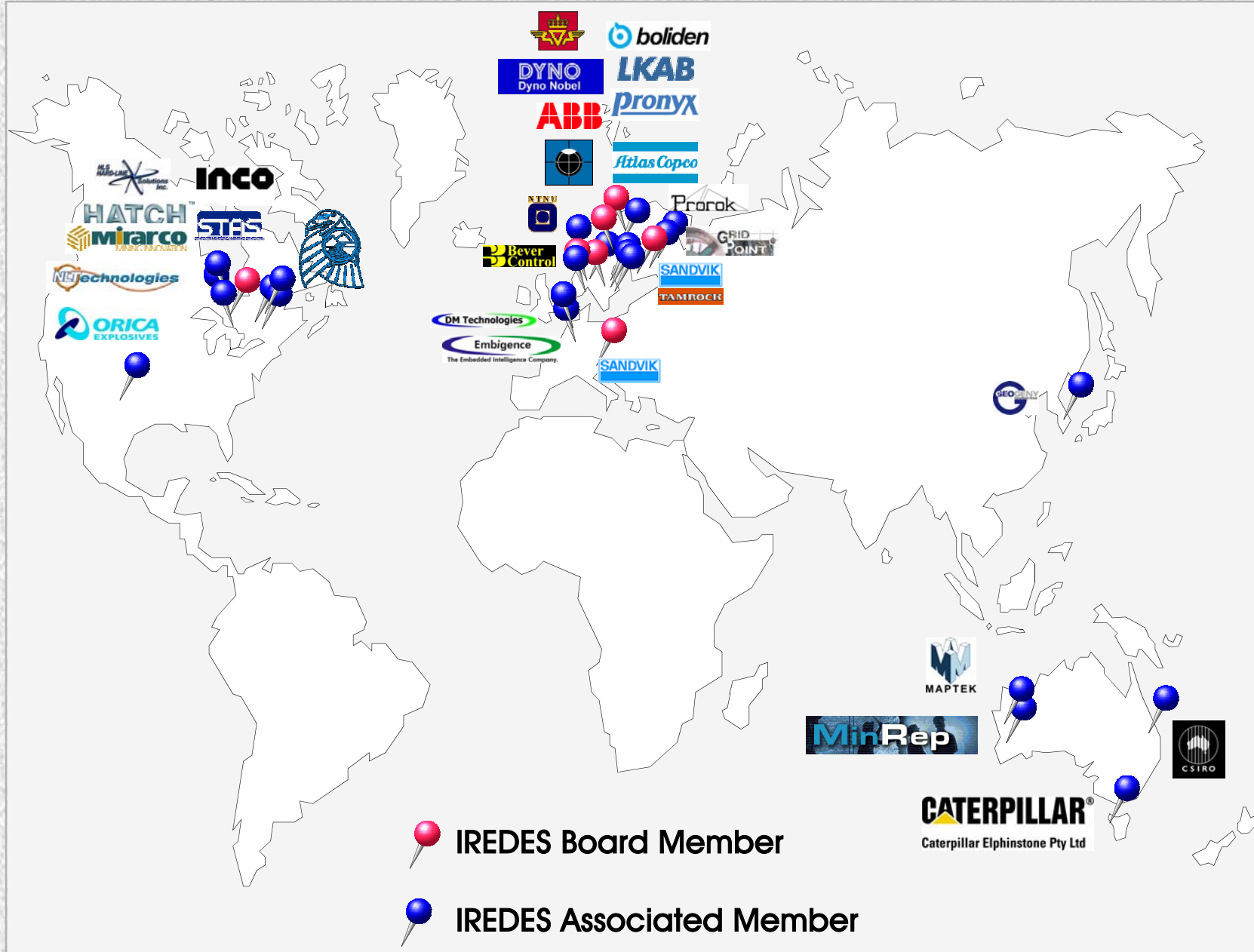
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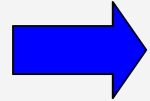
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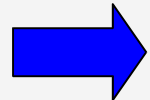
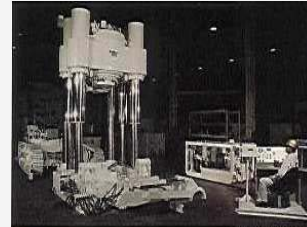
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Require “IREDES compliant reporting / data exchange” in tender documents and during purchase of machines and related IT-equipment



Participate in technical work by joining the IREDES initiative

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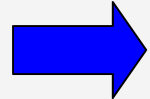
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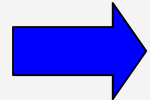
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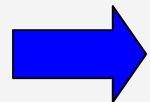
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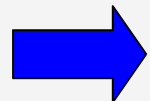
Reduced cost for production monitoring and quality reporting



Reduced cost for operation of multi vendor installations



As in other markets (e.g. GSM-Cellphones), a standard enables different equipment to talk, which increases competition on the customer valued equipment features.



Due to reduced prices also smaller mining and construction companies will be able to benefit from automation

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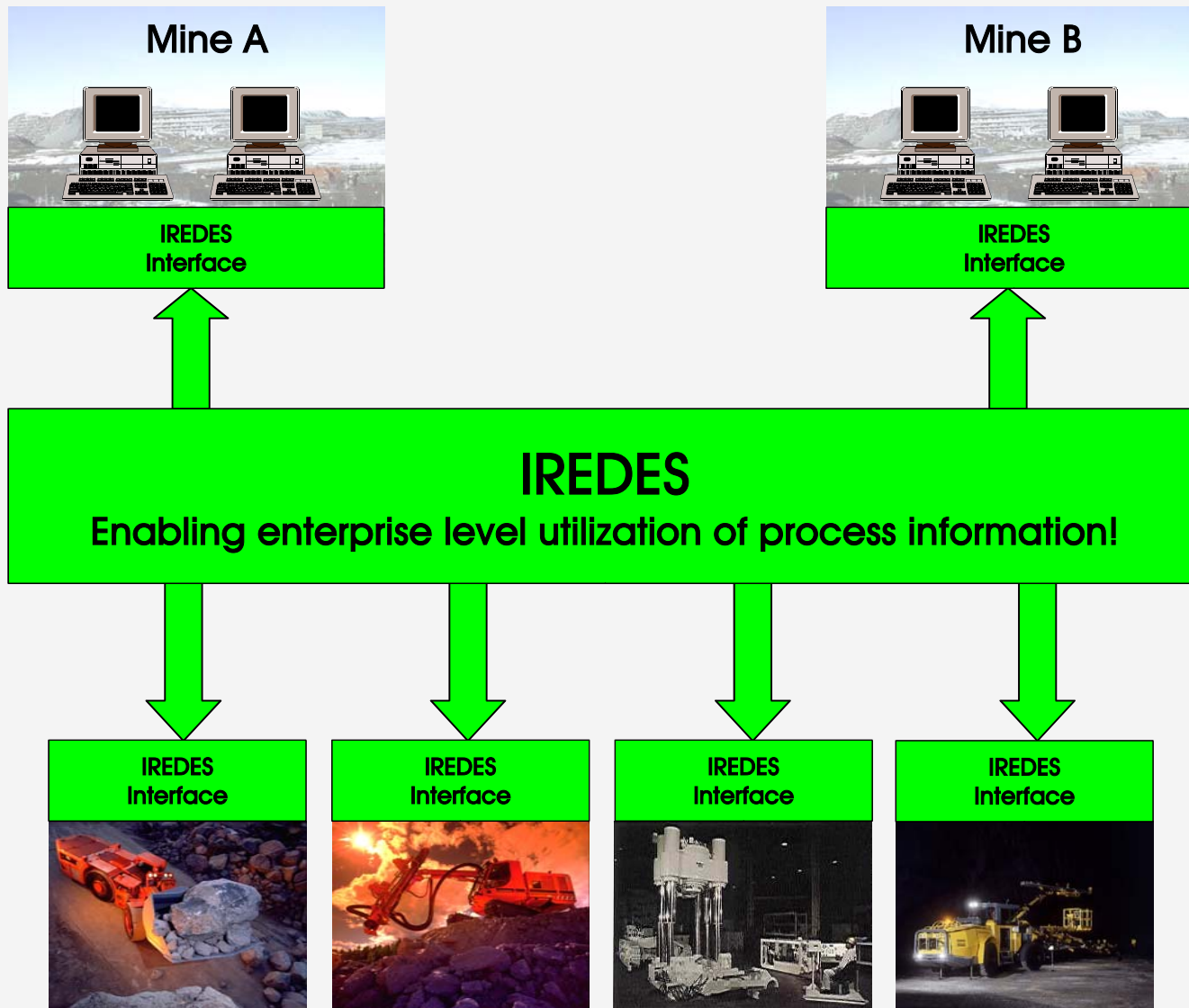
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Thank you for your attention