

KNR 2004 Outage



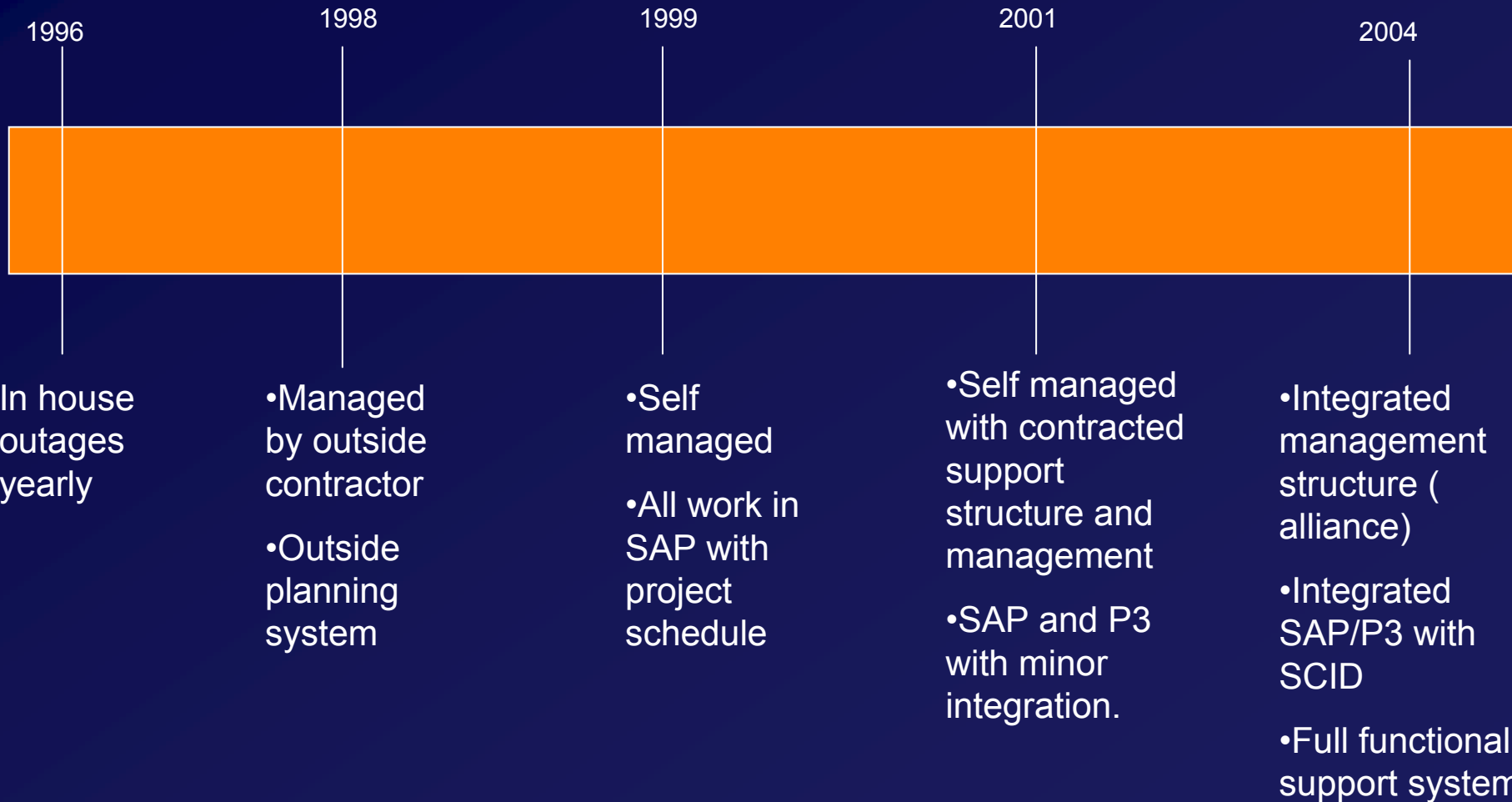
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KNR 2004 Outage - Introduction



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|------------|--|
| History | 1996, 1998, 1999, 2001, 2004 |
| Driver | Statutory Inspections / Major Projects Limited by wear / degradation |
| Philosophy | Only shut critical tasks/plant |
| Details | ~ 800 people peak ~ 3 weeks ~ \$20 – \$25M operating ~ \$3 – \$15M projects |

Evolution of Outages



KNR 2004 Outage - Approach



- Fully integrated team
- Integrated schedule (inclusive of runup / rundown)
- Alliance with experienced outage contractor
- Common KPI measures (all major contractors)
- One worklist and schedule only
- Sign off and control for all phases
- Full site involvement
- Multi labour suppliers

KNR 2004 Outage - Approach



Phases

- Initiation Phase (Worklist development)
- Preparation Phase (scoping, planning & resourcing)
- Mobilisation
- Execution
- Legacy

KNR 2004 Outage – Major Considerations

- Safety & Environmental performance
- IR conditions and approach
- Quality and quantity of manpower
- Impact on the site
- Contingency
- Long Lead items
- Campaign life and integrity

KNR 2004 Outage – Planning



- Initial worklist 12 months prior
- 60% repeat tasks
- Task complexity – simple / medium / complex
- % planning complete monitored
- Area experts completed scoping & planning
- Readiness audit
- Strong change management control (planning & execution phases)

KNR 2004 Outage – Execution

- Execution manager appointed 5 months prior
- Execution structure in place 4 months prior
- Roles & responsibilities developed and understood for all roles
- KNR personnel accountable for safety, environment, quality and costs
- Contractor supervisor 10 : 1
- Rotation roster and staggered hours
- Strong service / support structure
- Simple progress reporting & daily meetings
- Good quality night shift management and supervision
- Supervisors selection and early mobilisation
- Emergent work process

KNR 2004 Outage – Outcomes



- 4 MTI's and one Minor environmental
- Duration over by 2 days due to IR and Boiler issues
- Production profile on target
- Costs below budget
- Work quality and run up excellent
- All work scope completed
- Step forward in outage approach
- Excellent data and support system developed

KNR 2004 Outage – Learning's



- IR environment changed
- Strong focus on OSR & cranage
- Distribution of work across areas needs refining
- Strong integration of all work needed to achieve a good result
- Labour cycles need to be managed more closely
- OSF not to the desired quality
- OSR to have the right focus and resources