RAILNET-How to Make it More Efficient as a Management Tool

By:-   Ashwin Shukla   DSTE/JBP

Jagdish Chandra Gupta   DSTE/NDLS

Sanjay Bisariya   Sr.AFA/IZN

D.N.Soni   DME/NGP

Course Director   **Project Guide**

Shri Dwarika Prasad SPME   Shri Rajeev Sharma SPST

What is Railnet

★ Railnet is an intranet created for the Administrative and Organizational Information needs of Indian Railways

★ Provides communication solutions and information sharing for divisions, zones, production units, workshops, CTIs and Railway Board.

Internet and Intranet

★ An intranet is an internal company network that uses the internet standards of HTML(HyperText Markup Language) and HTTP(HyperText Transfer Protocol) TCP/IP(Transmission Control Protocol/Internet Protocol) communications protocol

What is the need of Railnet

* Security
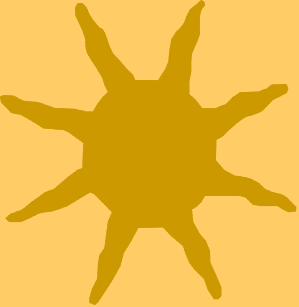* Economy
* Exclusive use for Railways
* Better Control
* Access to Remote Areas

Railnet Uses

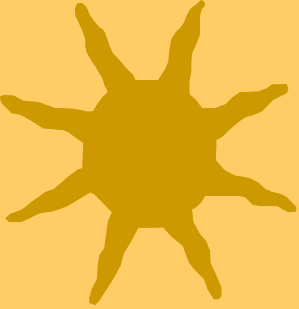* Internet surfing
* Railnet surfing(sites of various zones,CTI,PU etc.)
* E-mail (Railnet & Internet)
* File transfer and sharing
* Data acquisition and sharing
* MIS applications

Railnet v/s Internet

* Railnet uses a web server that is only connected to Railway's internal network

* Internet users can not access information on Railnet but Railnet users can be given privilege of accessing Internet

* Railway users access Internet through Railnet via the Internet gateway

Building an Intranet

★ Building a private intranet accessed through a server under your control is like living on an island that doesn't appear on any maps.

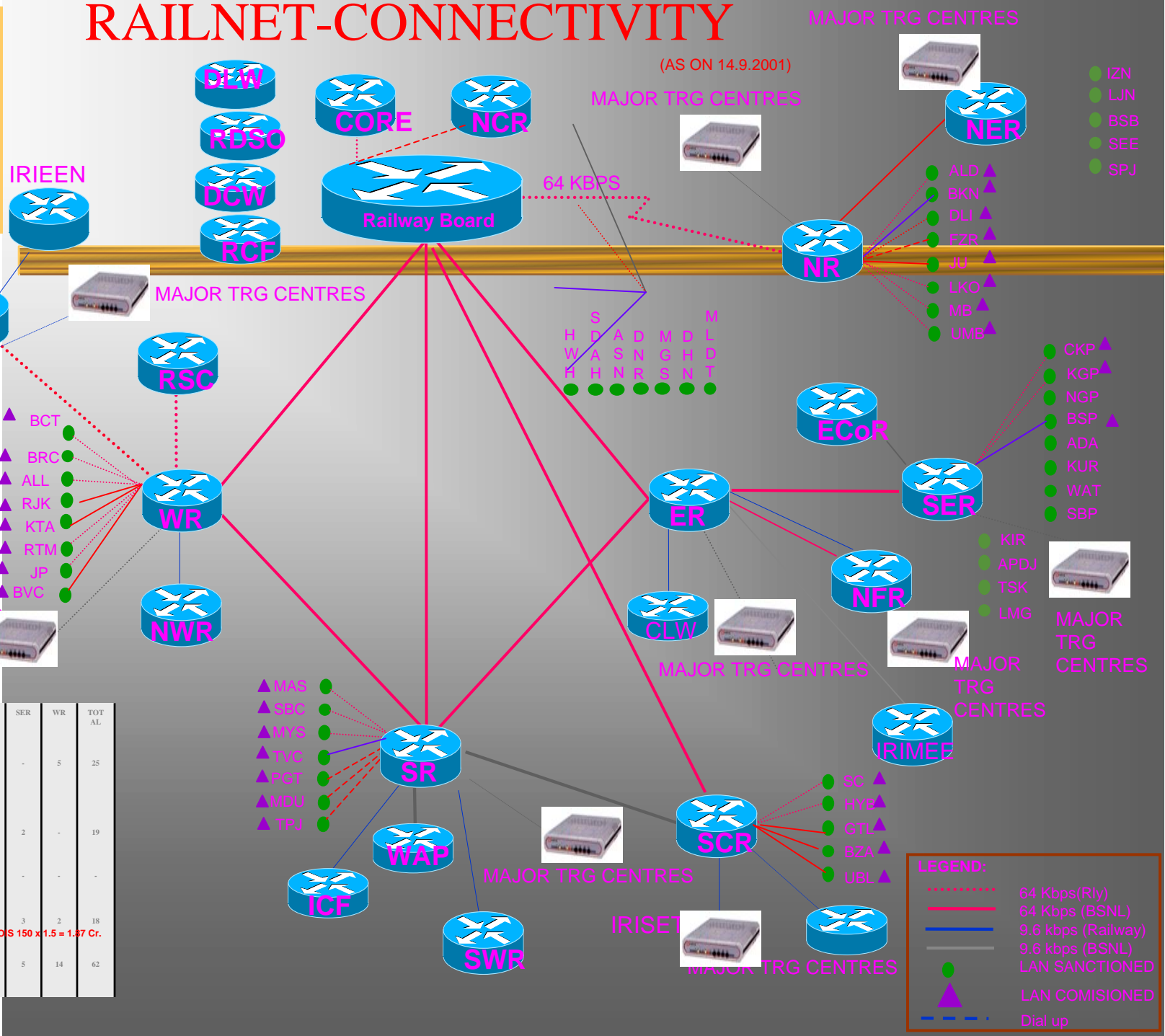**Railnet Sites**

RAILNET-CONNECTIVITY

(AS ON 14.9.2001)

MAJOR TRG CENTRES

MAJOR TRG CENTRES

IRICEEN

IRIEEN

DLW

RDSO

DCW

RCF

CORE

NCR

Railway Board

64 KBPS

NER

IZN
LJN
BSB
SEE
SPJ

NR

ALD
BKN
DLI
FZR
JU
LKO
MB
UMB

BB
BSL
BPL
JHS
JBP
NGP
SUR

CR

WCR

MAJOR TRG CENTRES

RSC

S H W H | D A H | A S H | D N R | M G S | D H N | M L D T

ECoR

CKP
KGP
NGP
BSP
ADA
KUR
WAT
SBP

BCT
BRC
ALL
RJK
KTA
RTM
JP
BVC

WR

SER

NWR

MAJOR TRG CENTRES

ER

CLW

NFR

KIR
APDJ
TSK
LMG

MAJOR TRG CENTRES

MAJOR TRG CENTRES

MAJOR TRG CENTRES

IRIMEE

MAS
SBC
MYS
TVC
PGT
MDU
TPJ

SR

WAP

ICF

MAJOR TRG CENTRES

SCR

SC
HYB
GTL
BZA
UBL

SWR

IRISET

MAJOR TRG CENTRES

ICF

	CR	ER	NR	SR	SCR	SER	WR	TOTAL
64 BSNL	7	3+1	2	3	4	-	5	25
64 RLY.	3	-	6	6	2	2	-	19
9.6 BSNL	-	-	-	-	-	-	-	-
9.6 RLY.	2	4	2	4	1	3	2	18
TOTAL	12	8	10	37 Lacs	7	5	14	62

AS ON 14.09.2001

BSNL >600 KM 24 x 1.5 = 36 Lacs
BSNL <600KM   1 x 1   = 1 Lac
FOIS 150 x 1.5 = 1.87 Cr.

LEGEND:
········· 64 Kbps(Rly)
——— 64 Kbps (BSNL)
——— 9.6 kbps (Railway)
——— 9.6 kbps (BSNL)
● LAN SANCTIONED
▲ LAN COMISIONED
- - - Dial up

Railnet – Present Status

* All the Zonal Headquarters, PUs, Divisions & Workshops have been linked to Railnet
* Railnet sites of all Zonal Railways and most Divisions have been developed
* Most units have their own Email servers for internal communication
* Codes/Manuals are available on Railnet

Computer Network as a Management Tool

★ Provide fast & reliable communication

★ Seamless exchange of information
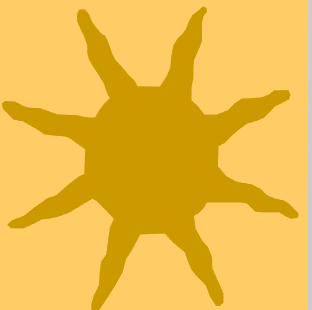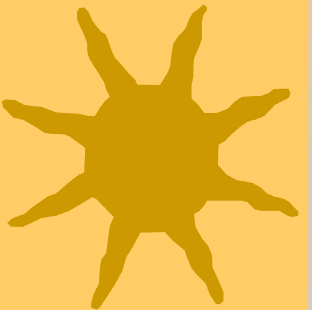
★ Easily accessible & manageable data

★ Reduction in paperwork

★ Reduction in manpower

★ Increased economy in operation

★ Provide decision support system to management

How Effective is Railnet as a Management Tool???

The Survey
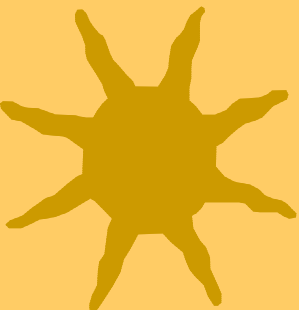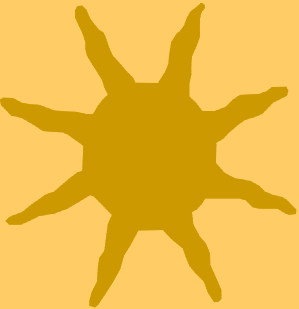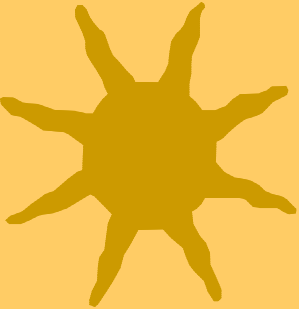
★ To get a feedback regarding the present usage pattern and expectations regarding Railnet, a questionnaire was circulated to officers of various Divisions, Workshops, Zonal Headquarters

★ The feedback was also taken from faculty and trainees of RSC

Questionnaire

Survey Sample

- Four Zonal Railways
- Four Divisions
- Two Workshops
- RSC Faculty
- RSC Officer Trainees
- Questionnaires Distributed - 225
- Responses Received - 114

Survey Results

★ After Computerization Paper Work has
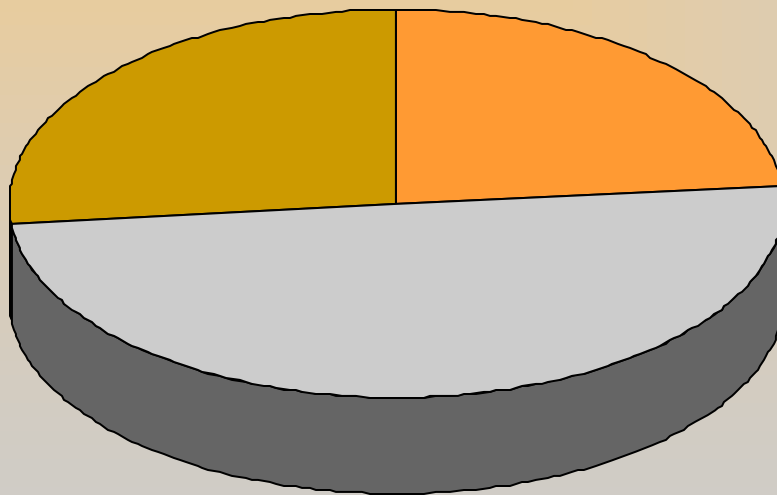
Decreased (24%)

Increased (49%)

Remained the Same (27%)

Survey Results

✶ Availability of Computer

✶ Availability of Railnet

Available (89%)

Not available (11%)

Available (57%)

Not available (43%)
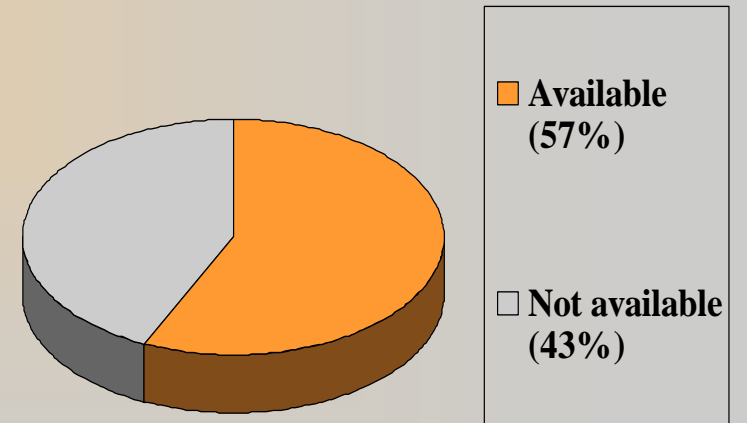
Survey Results

★ Uses of Railnet
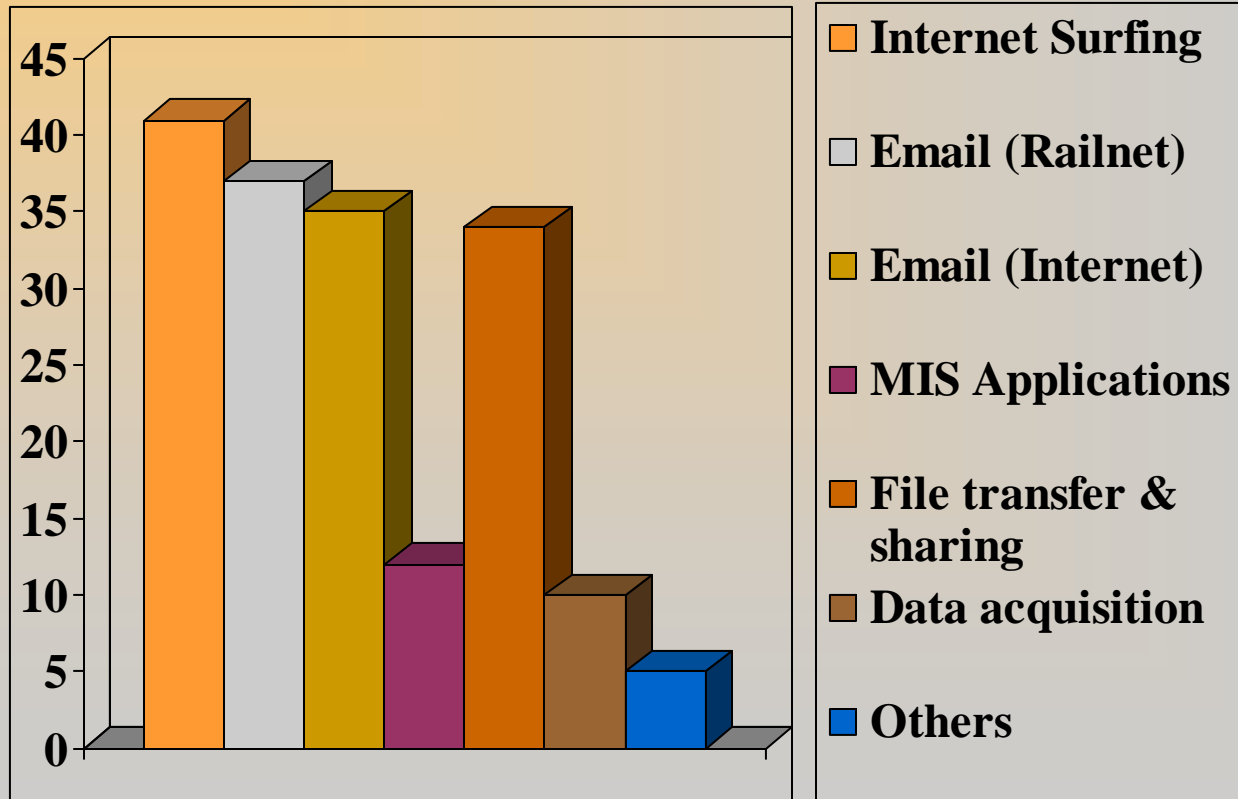
Survey Results

★ Time spent per day using Railnet
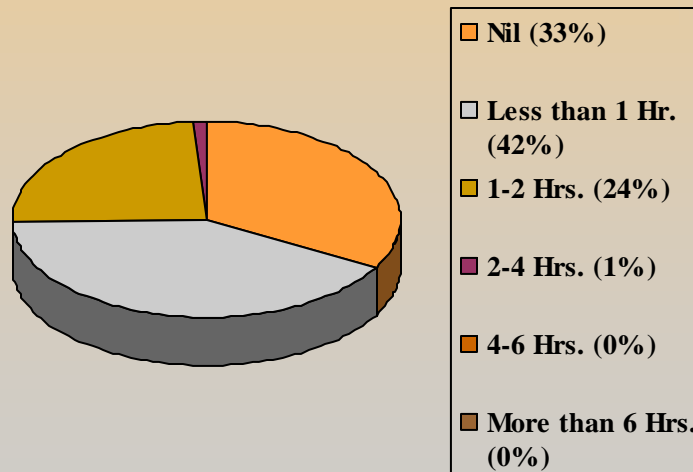
★ Visits to Railnet websites

- Nil (33%)
- Less than 1 Hr. (42%)
- 1-2 Hrs. (24%)
- 2-4 Hrs. (1%)
- 4-6 Hrs. (0%)
- More than 6 Hrs. (0%)

- No (31%)
- Very Rarely (29%)
- Often (36%)
- Regularly (4%)
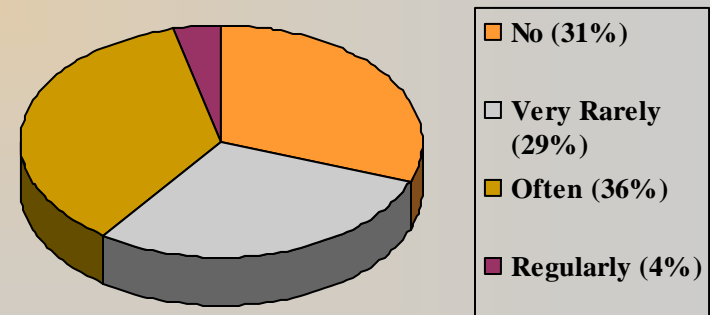
Survey Results

★ Problems faced while using Railnet
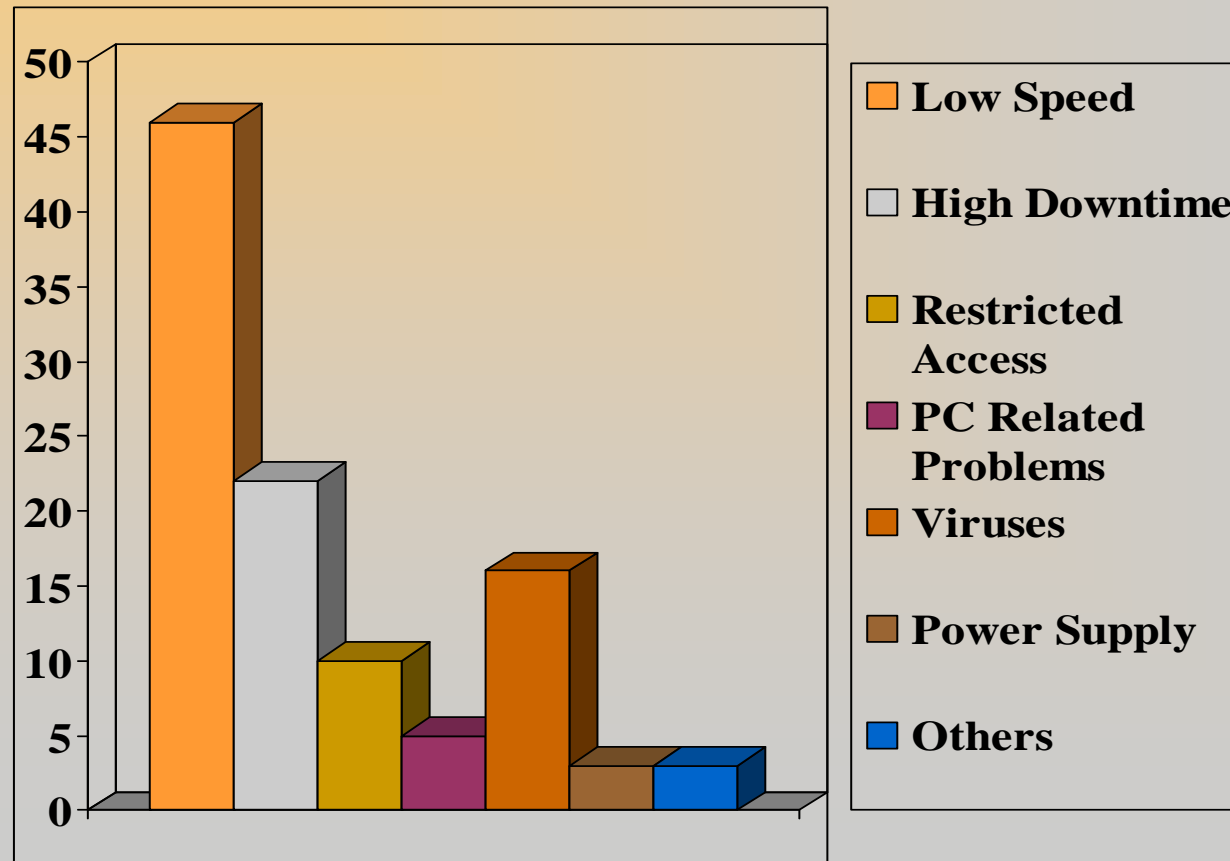
Survey Results

★ Areas requiring training to make better use of Railnet
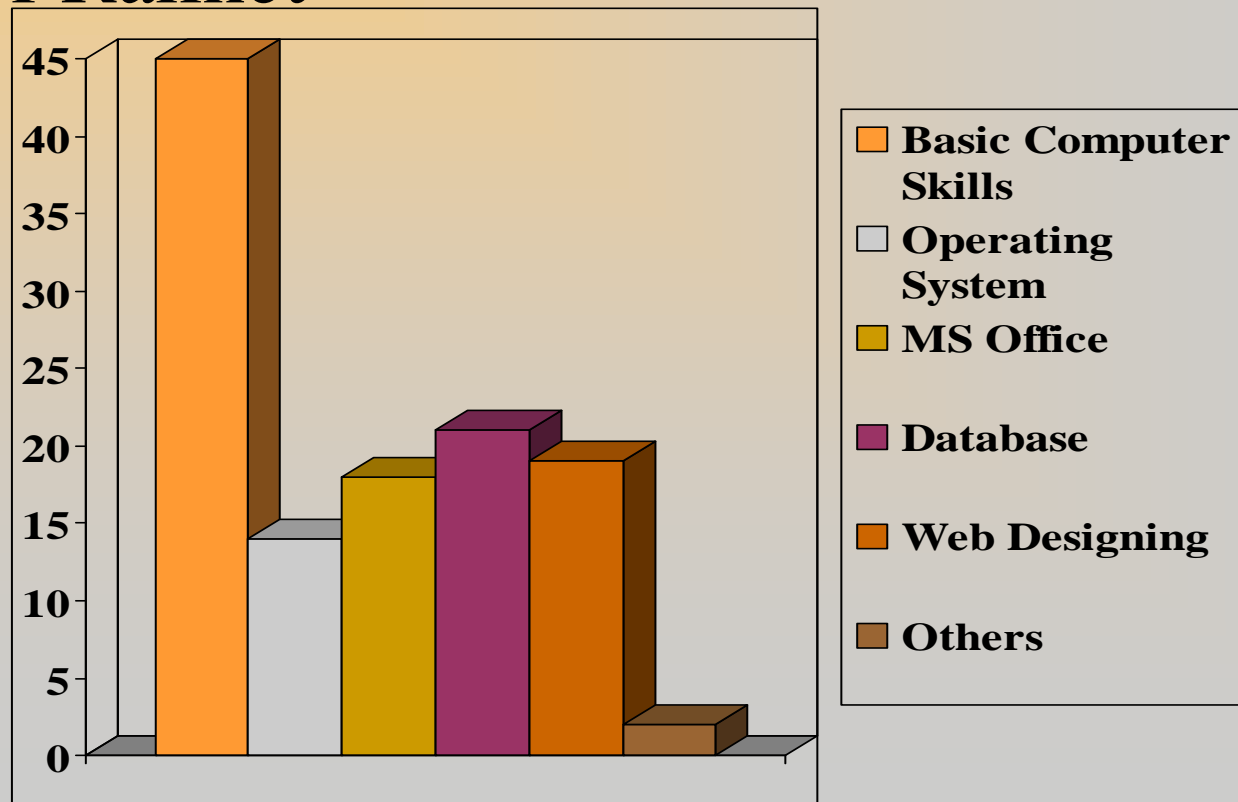
Survey Results

★ Use of Railnet for correspondence within Railways

Yes (31%)
No (69%)
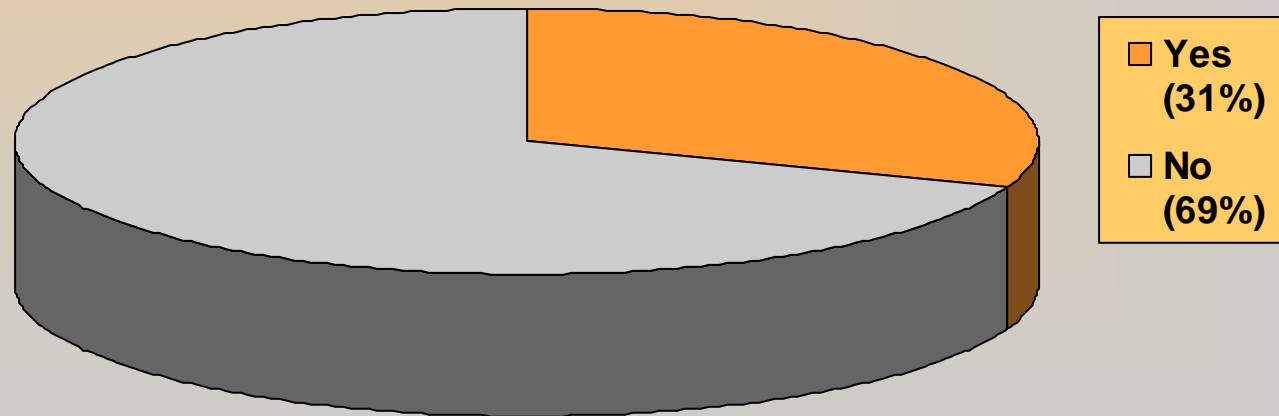
Survey Results

★ Posting of Databases on Railnet
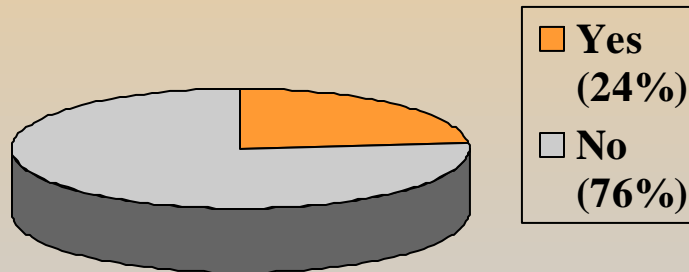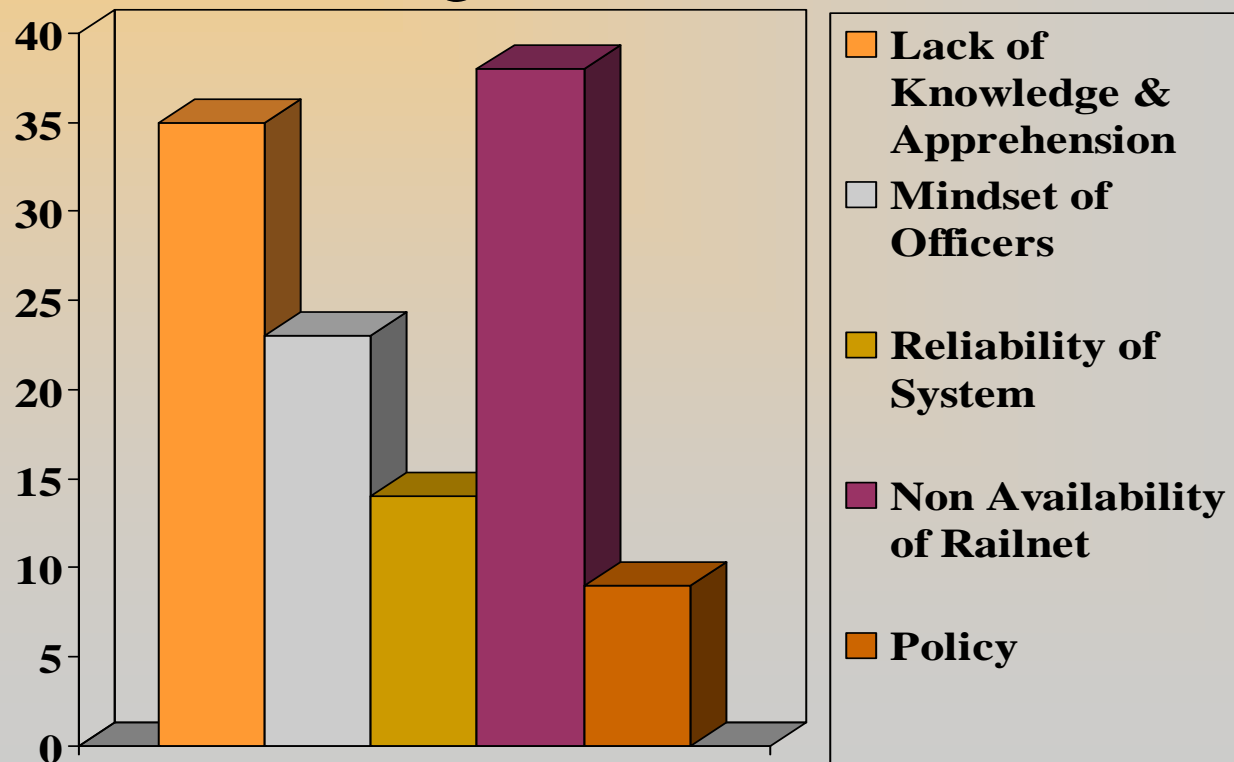
★ Updating of Databases

Yes (24%)
No (76%)

Yes (77%)
No (23%)
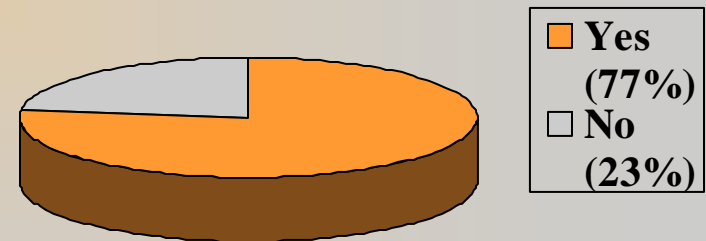
Survey Results

★ Effectiveness of Railnet as a Management Tool

- Very Effective (7%)
- Moderately Effective (22%)
- Less Effective (38%)
- Not Effective at all (33%)
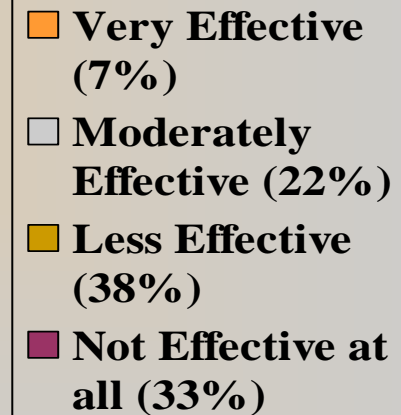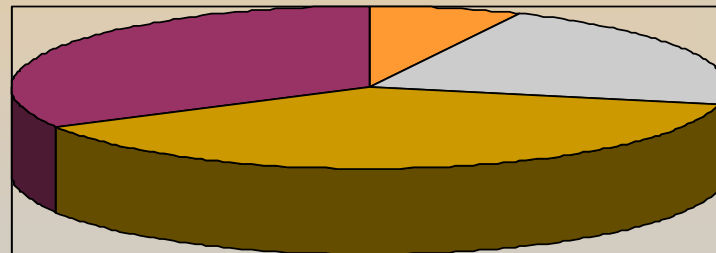
Survey Results

★ Why Railnet has failed to become an effective Management Tool

Legend:
- **Lack of Knowledge & Apprehension**
- **Mindset of Officers**
- **Reliability of System**
- **Non Availability of Railnet**
- **Policy**

Survey Results

★ Awareness about availability of Policies, Codes, Manuals on Railnet
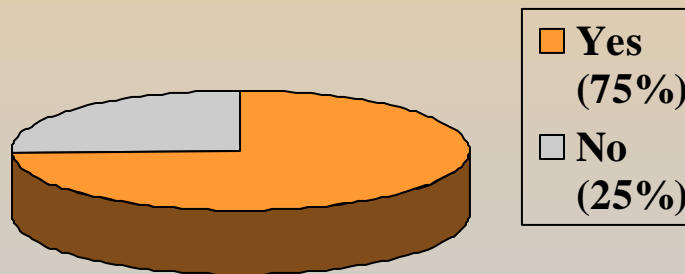
★ Use of Policies, Codes, Manuals on Railnet

■ **Yes (75%)**
□ **No (25%)**

■ **Yes (61%)**
□ **No (39%)**

Survey Results-Most Popular

★ **Best Railnet Website**

RSC, WR, Rly. Bd.

★ **Best Internet Website**

Yahoo, Indiatimes, Indianrail

★ **Best Internet Email Service Provider**

Yahoo Mail, Hot Mail, Rediff Mail

★ **Best Search Engine**

Google

Where does the problem lie?

- Technology?
- Reach?
- Availability?
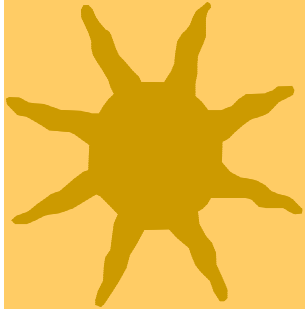- Training?
- Content?
- Attitude and Acceptability?
- Funds?
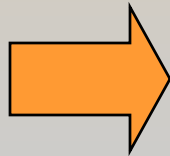
Recommendations

1. Hardware-
   PCs, Servers, Printers
2. Content & Software-
   MIS, Databases, Websites
3. Networking-
   Connectivity, Bandwidth, Reach
4. Others-
   Power Supply, Enviromental Factors

Recommendations (Hardware)

* Assessing the utilization of existing PCs
* Requirement of PCs & Servers to be worked out on long term basis
* Full utilization of existing powers & funds
* Package procurement for PCs
* Hardware redundancy for essential servers

Recommendations (Hardware)

- Comprehensive AMC (Including Software) for PCs and Servers

- Proper documentation of hardware

- Nomination of nodal officer and supervisor in each department

Recommendations (Content & Software)

- ★ Ensure sufficient availability of licensed Software
- ★ MIS software to be immediately implemented
- ★ Selection of correct packages
- ★ Proper upkeep of software
- ★ Long-term Software development contracts
- ★ AMC of standard software to be a part of AMC of PCs & Servers

Recommendations (Content & Software)

- ★ Software privileges to be decided & enforced

- ★ Proper documentation to be ensured

- ★ Intellectual Property Rights

- ★ Standardization of minimum content of websites

- ★ Ensuring periodic updating of data

Recommendations (Content & Software)

- ★ Dynamic Website
- ★ Value of content for the user
- ★ Sharing of Information from other Networks
- ★ Workflow Application
- ★ Clearly Defined Hierarchical Ownership of Content
- ★ Content Management System

Recommendations (Networking)
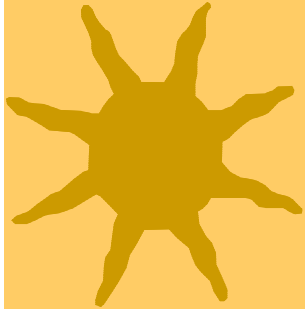
- Comprehensive, time bound network plan to be developed by each Railway based on field requirements
- Railnet to be extended to all supervisors
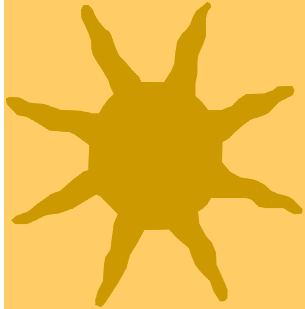- Selection of appropriate technology
- Standards to be followed
- Proper documentation to be ensured
- Wherever Rly. OFC is available Ethernet over Fiber to be used
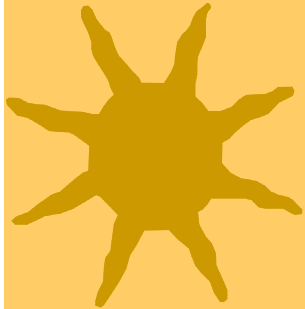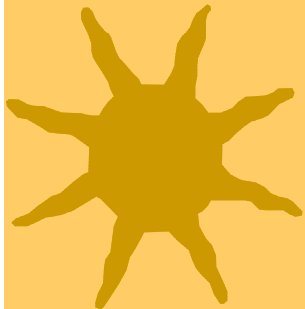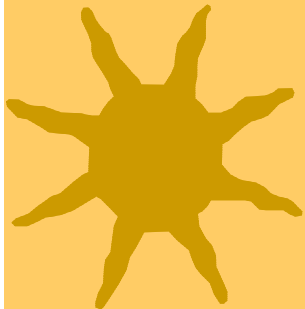
Recommendations (Networking)

* Changes to the networking plan to be made with proper authority & documentation
* Annual maintenance, administration, troubleshooting & consultancy contract
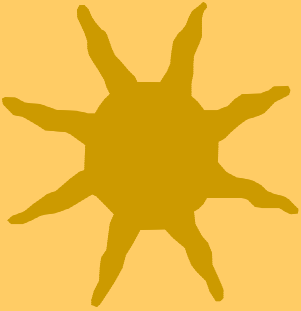* Nomination of dedicated supervisors for maintenance of Railnet
* Awarding comprehensive expansion contracts based on network plan
* Separate network for sensitive applications
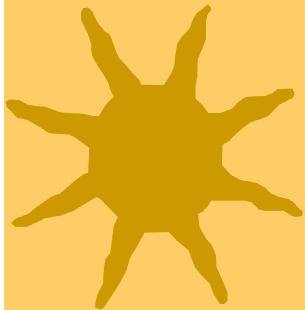
Recommendations (Networking)

- Multiple Internet gateways

- Sharing of Internet gateways

- Multiple internal Railnet links

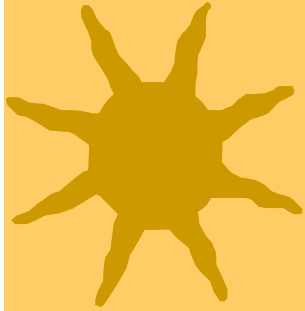- Internet access to be restricted but far & wide Railnet access to be given

- Antivirus Server

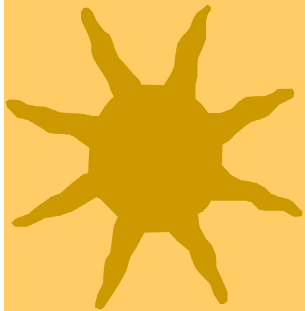- Essentials- Proxy Server, NMS, Firewall, Load Balancer, IDS
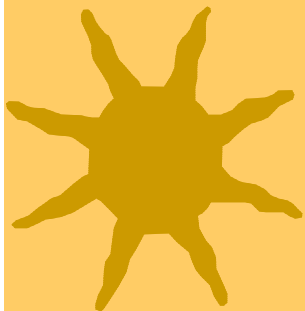
Recommendations (Others)

* Ensure availability of pure sinusoidal AC power supply
* Selection of UPS based on conditions of Power Supply & Load
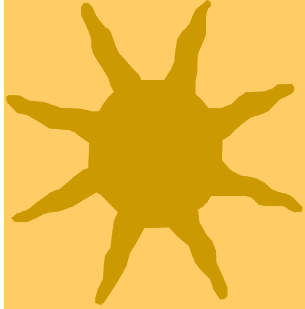 * Capacity
  * Back up time
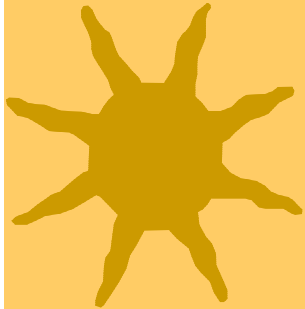 * Type of UPS
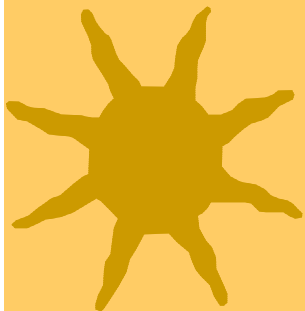* More powers to DRMs & CWMs

Recommendations (Others)

* Proper earthing to be ensured
* Surge protection
* Controlled environment for network equipment
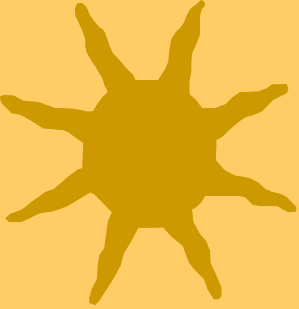* Protection of PCs from dust, moisture, heat
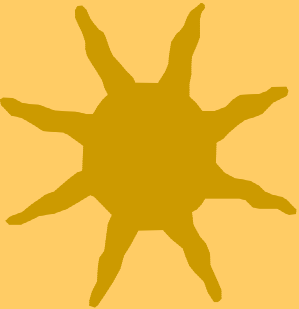* Local professional training for staff
* **<u>Develop IT Culture</u>**

Conclusion

* The resources are already available.
* The network has the coverage of entire Indian Railway.
* What we need is the vision to see the advantages of using it as a management tool.
* A sea change in the mindset of the users is required to ensure
* Administration should have strong will power to adopt IT.

The era of IT needs to be ushered in……

not just because it is the need of the hour but…… because there is no other alternative.

Thanks