

TOTAL atm



HOW TO BEST ESTABLISH EFFICIENT DEMAND-BASED ATCO ROSTERING

Flemming nyrup
senior atm advisor
Maastricht ATM Knowledge Centre

A MAKC PRODUCTION

Pre-QUIZZ



muac



eurocontrol
maastricht upper area control centre

FL245+

Norway

Sweden

Faroe
Islands

Denmark

Netherlands

Belgium

Germany

n



SHIFTING atm



ACE PRODUCTIVITY

27% increase

muac 2012
1,9

muac 2004
1,5

A black and white photograph of two hands, palms facing each other, fingers slightly spread, as if reaching towards each other. The hands are weathered and the skin texture is clearly visible. The background is a blurred, light-colored surface.

50%
OF 80%

STAFF resourcing

The background of the entire image is a high-contrast, black and white photograph of several interlocking mechanical gears. The gears are of different sizes and are positioned in a way that creates a sense of depth and complexity. The lighting highlights the metallic texture and the teeth of the gears.

customer orientation



culture & communication

environment

staff resourcing

safety

resilience

capacity

cost efficiency



interdependency

THE GRASS IS GREENER



motivation



STRENGTH





control

Human Factors





Fatigue

understanding





PROBLEM



Foundation

A close-up photograph of a wooden gavel with a brass band, resting on a stack of Euro banknotes. The banknotes visible are 10, 20, 50, and 100 Euro. In the background, a portion of the European Union flag with its yellow stars on a blue field is visible. The word "SETTINGS" is overlaid in white text in the upper right corner.

SETTINGS



GUIDELINES ON FATIGUE MANAGEMENT IN ATC ROSTERING SYSTEMS



INTERNATIONAL FEDERATION OF
AIR TRAFFIC CONTROLLERS' ASSOCIATIONS

63rd ANNUAL CONFERENCE
15 – 19 April 2024, Singapore

Agenda Item: C.6.5

WORKING PAPER

WP No: 156
IFATCA'24



Study on the Analysis, Prevention and Management of Air Traffic Controller Fatigue

May 2024



Doc 9966

Manual para la supervisión de los enfoques de gestión de la fatiga

Segunda edición, Versión 2 (Innovada), 2020

Aprobado por la Secretaría General y publicado bajo su responsabilidad

ORGANIZACIÓN DE AVIACIÓN CIVIL INTERNACIONAL

EUROPEAN ORGANISATION
FOR THE SAFETY OF AIR NAVIGATION



This Document is based on EUROCONTROL's Mission: 'The controller who has
experience, they protect, inform and coordinate, in any, before best practice.'

Managing Shiftwork in European ATM: Literature Review

Document Number	1.0
Original Date	10 July 2020
Version	Revised Version
Revised by	EUROCONTROL

EUROPEAN AIR TRAFFIC MANAGEMENT



Fatigue and Sleep Management

Personal strategies for decreasing the effects of
fatigue in Air Traffic Control



(self)Protection

A close-up, low-angle shot of a person's torso and arms. They are wearing a grey, textured suit jacket over a white dress shirt. Their hands are clenched into fists and are resting on a plain white surface. The lighting is bright and even, highlighting the texture of the suit and the skin on the hands. The overall composition is symmetrical and minimalist.

SOCIAL DIALOGUE

A man with a grey beard and mustache, wearing a green police uniform, is leaning on a stone pillar. He has his arms crossed and is looking directly at the camera. The uniform has two stars on the shoulders and a 'SECURITY' patch. In the background, there is a yellow wall and a black metal gate with a sign that says 'THE PAST'.

culture &
communication

CHARTER

create a sustainable, HEALTHY, FLEXIBLE and
efficient Demand Based roster

Trade STRUCTURAL Inefficiency For Less
WORKING Days / BETTER WORKING CONDITIONS

A black and white photograph showing a person from behind, walking away on a long, straight, paved road that stretches into the distance. The road is flanked by dense, leafless trees, creating a sense of isolation and solitude. The person is centered in the frame, and the road's perspective draws the eye towards the horizon. The overall mood is contemplative and lonely.

Lonely



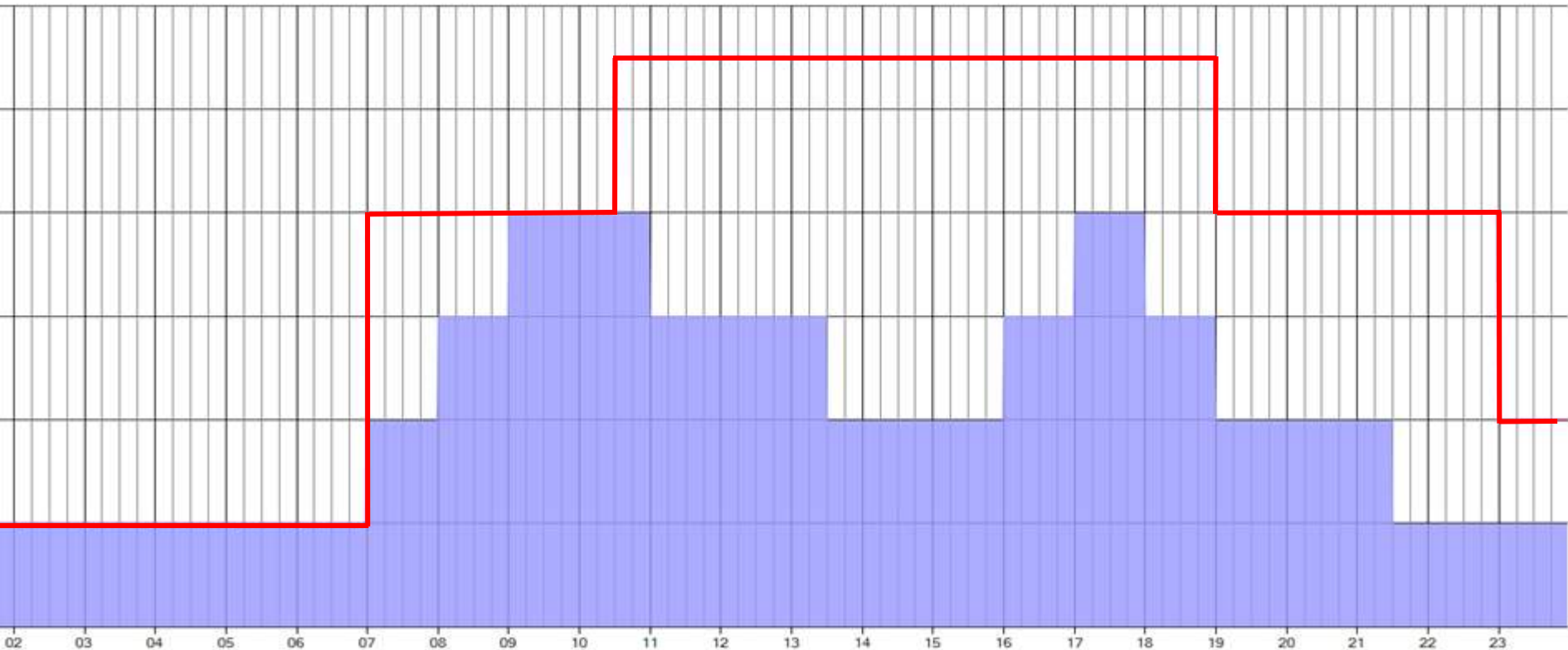
forecast



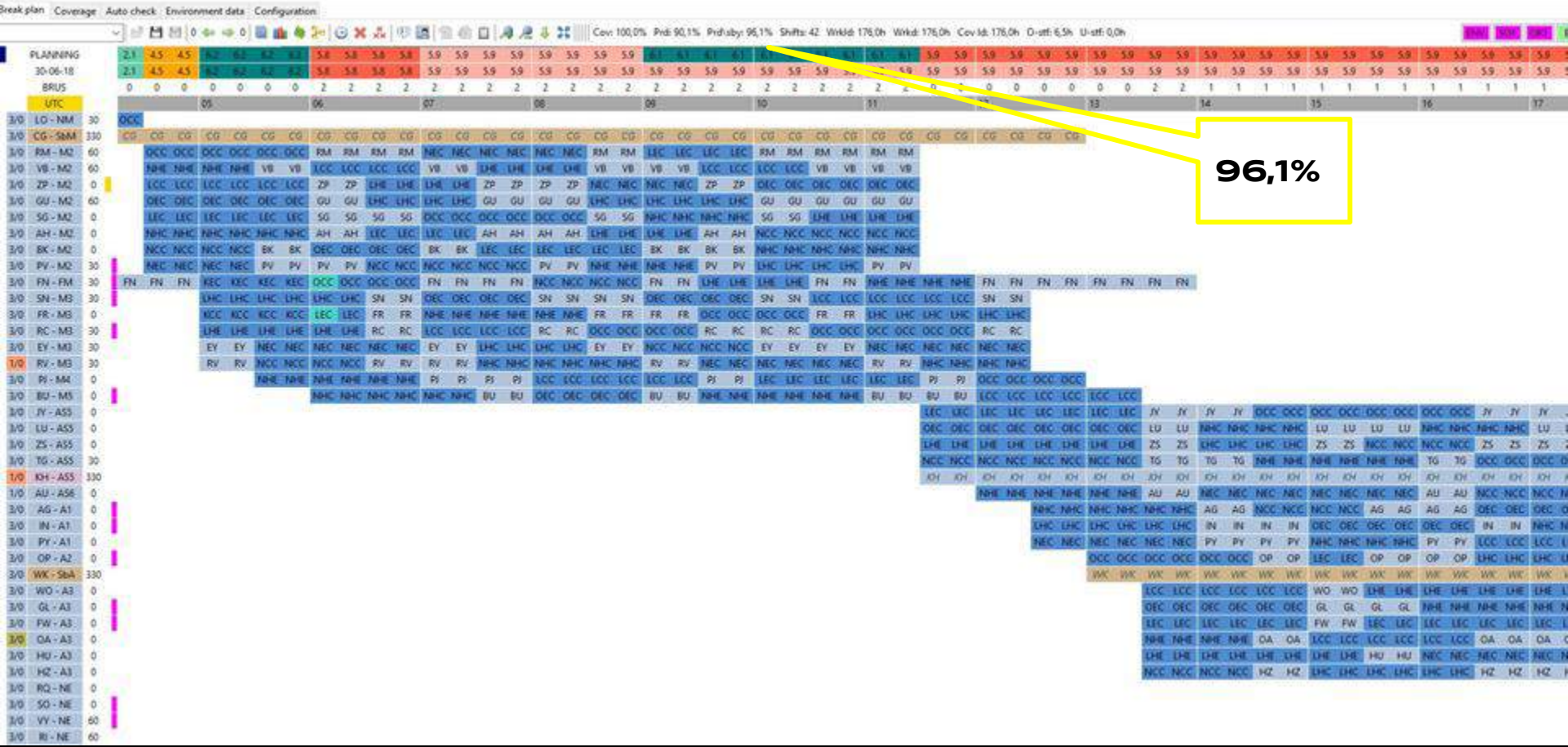
SOT

STRUCTURAL Inefficiency

Environment data Configuration



STRUCTURAL efficiency (real example)





'new'

shift	start	end	length
M1	0600	1230	6.5 hrs
M2	0630	1330	7 hrs
M3	0700	1430	7.5 hrs
M4	0730	1500	7.5 hrs
M5	0800	1530	7.5 hrs
MS1	0830	1600	7.5 hrs
MS2	0900	1630	7.5 hrs
MS3	0930	1700	7.5 hrs
MS4	1000	1730	7.5 hrs
MS5	1030	1800	7.5 hrs
MS6	1100	1830	7.5 hrs
AS1	1130	1900	7.5 hrs
AS2	1200	1930	7.5 hrs
AS3	1230	2000	7.5 hrs
AS4	1300	2030	7.5 hrs
AS5	1330	2100	7.5 hrs
AS6	1400	2130	7.5 hrs
A1	1430	2200	7.5 hrs
A2	1500	2230	7.5 hrs
A3	1530	2300	7.5 hrs
A4	1600	2330	7.5 hrs
A5	1630	2400	7.5 hrs
N	2300	0630	7.5 hrs
FM	0600	1600	10 hrs
FD	1000	2000	10 hrs
Fa	1400	2400	10 hrs
SbM	0600	1500	9 hrs
SbD	1030	1930	9 hrs
SbA	1500	2400	9 hrs

preferred





ready....



(r)evolution

- PROBLEM SOLVED?
- new PROBLEMS?
- adjustments?



PROBLEM

WORK PACKAGE modules

WP 1: POST OPS

WP 2: CAPACITY management

WP 3: resource management

WP 4: Performance management

WP 5: SUPPORT TOOLS

SHIFTING atm



PEOPLE
POWER
PLANNING
TOOLS



TOOLS

- OPS ROSTER TOOL
- POSITION Planner
- LONG Term PLanning
- Preference TOOL
- PrePlanner
- SIGN-IN/SIGN-OUT
- SWAP TOOL
- medical Planner
- eBrief TOOL
- CONTROLLER COCKPIT

Ministério da Defesa
Departamento de Controle do Espaço Aéreo
Praça Aérea Brasileira

Notícia Destaque

DECEA inicia operação assistida do módulo "Plano de Rendições" do Sistema SATURNO

Assim como, 20/03/2023
08:34

SATURNO





SAT  **RNO**

sota



The background of the entire image is a high-contrast, black and white photograph of several interlocking mechanical gears. The gears are of different sizes and are positioned in a way that creates a sense of depth and complexity. The lighting highlights the metallic texture and the teeth of the gears.

customer orientation



culture & communication

environment

staff resourcing

safety

resilience

capacity

cost efficiency

CULTure

eats

STrategy

FOR BREAKFAST



Progress

PRODUCTIVITY

Decea 202?
?

europaean
average
0,93



Pre-QUIZZ

TOTAL atm



FUTURE atm